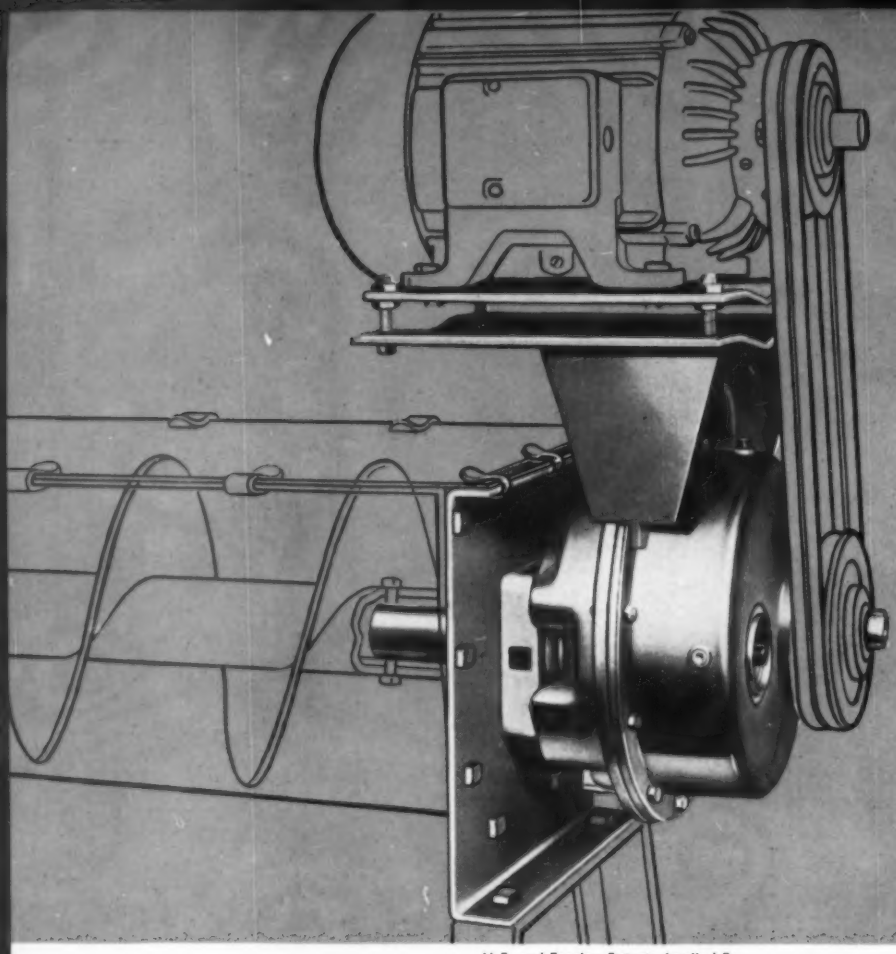
OCTOBER, 1959

THE Lumberman

LUMBER PLYWOOD BOARD WOOD MANUFACTURING

CONTROLLING TIME, TEMPERATURE AND HUMIDITY



NEW! FALK Screw Conveyor Drive

U.S. and Foreign Patents Applied For

—the drive our customers asked for

Our customers helped us design this new unit. We sent our men into the field to find out what our customers needed in a screw conveyor drive—then our engineers designed a new drive that offers the maximum of service, versatility, operating economy and long life. Here are some of its outstanding features:

A COMPLETE DRIVE: Saves engineering and assembly time. Six sizes to cover entire range—each with these ratios: — 4:1, 9:1, 14:1 and 24:1. Bolts to any standard trough end—eliminates trough end bearing. Eliminates drive shaft wobble. Efficient FALK single helical gears.

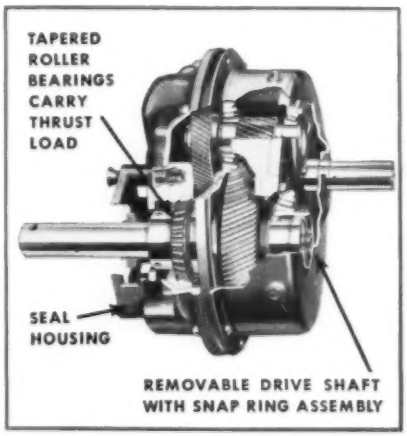
SEAL HOUSINGS: Choice of seals (neoprene or leather lip, felt or waste) to accommodate material conveyed. Space between trough seal and unit seal prevents conveyed material from reaching unit seal.

REMOVABLE DRIVE SHAFT: Snap ring assembly permits easy removal. Five sizes, from 1½" to 3⅞".

TROUGH END: Can be fastened to any standard trough. Eight sizes, from 6" to 20".

ALL-STEEL MOTOR MOUNT: Saves costly engineering and installation time and costs; no motor plates to design or fabricate. Motor can be mounted in virtually any position. Pre-drilled to accommodate NEMA standard motors ½ to 30 HP.

AN IMPORTANT ECONOMY: Buy only what you need—the basic reducer alone, or with trough end and/or motor mount. For detailed information, contact your Falk Representative or Distributor—or ***write direct for Bulletin 7106.***



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FALK is a registered trademark

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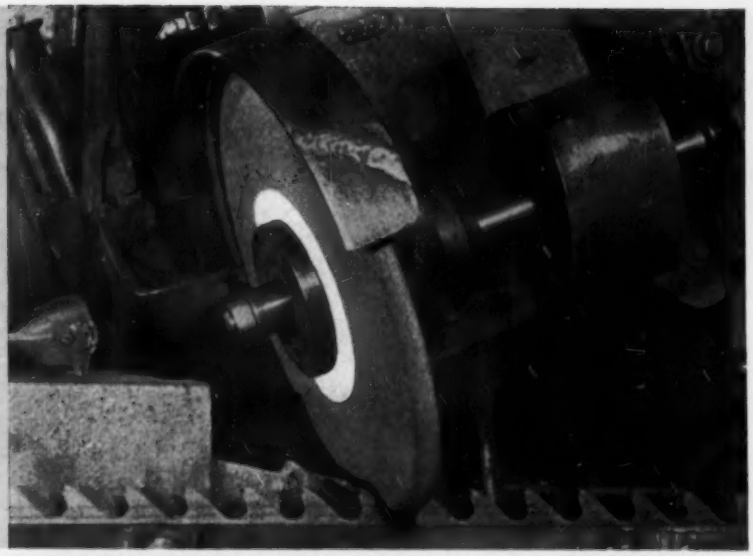

VITRIFIED for KNIFE SHARPENING...

32 ALUNDUM* wheels protect high speed steel on all grinding jobs

Norton 32 ALUNDUM* abrasive, outstanding for fast, cool cutting action, brings your saws, knives and cutterheads top protection against heat damage during sharpening operations.

Your saws, knives and cutterheads get new life and longer lasting sharpness from these benefits — safeguarded by the B5 resinoid bond for saw gumming and by the BE vitrified bond for all knife sharpening jobs. Additional "Touch of Gold" advantages of these leading abrasive-and-bond combinations are long wheel life with few dressings, plus precise duplication of wheels and performance with each re-order.

For expert aid in selecting 32 ALUNDUM wheels contact your Norton distributor. The Norton Santa Clara manufacturing plant supplies West Coast Distributors with wheels used by the lumber industry. NORTON COMPANY, Worcester 6, Mass. Plants and distributors around the world.

*Trade-Mark Reg. U.S. Pat. Off. and Foreign Countries

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W-1943

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for free-and-easy sorting

LINK-BELT roller-top chain assures fast, orderly handling of boards of any size

From the free-turning rollers of Link-Belt roller-top chain, boards of varying sizes can be pulled off quickly and easily . . . one at a time. Mounted parallel to conveyor travel, the rollers provide ample surface for easy handling at any point along the line.

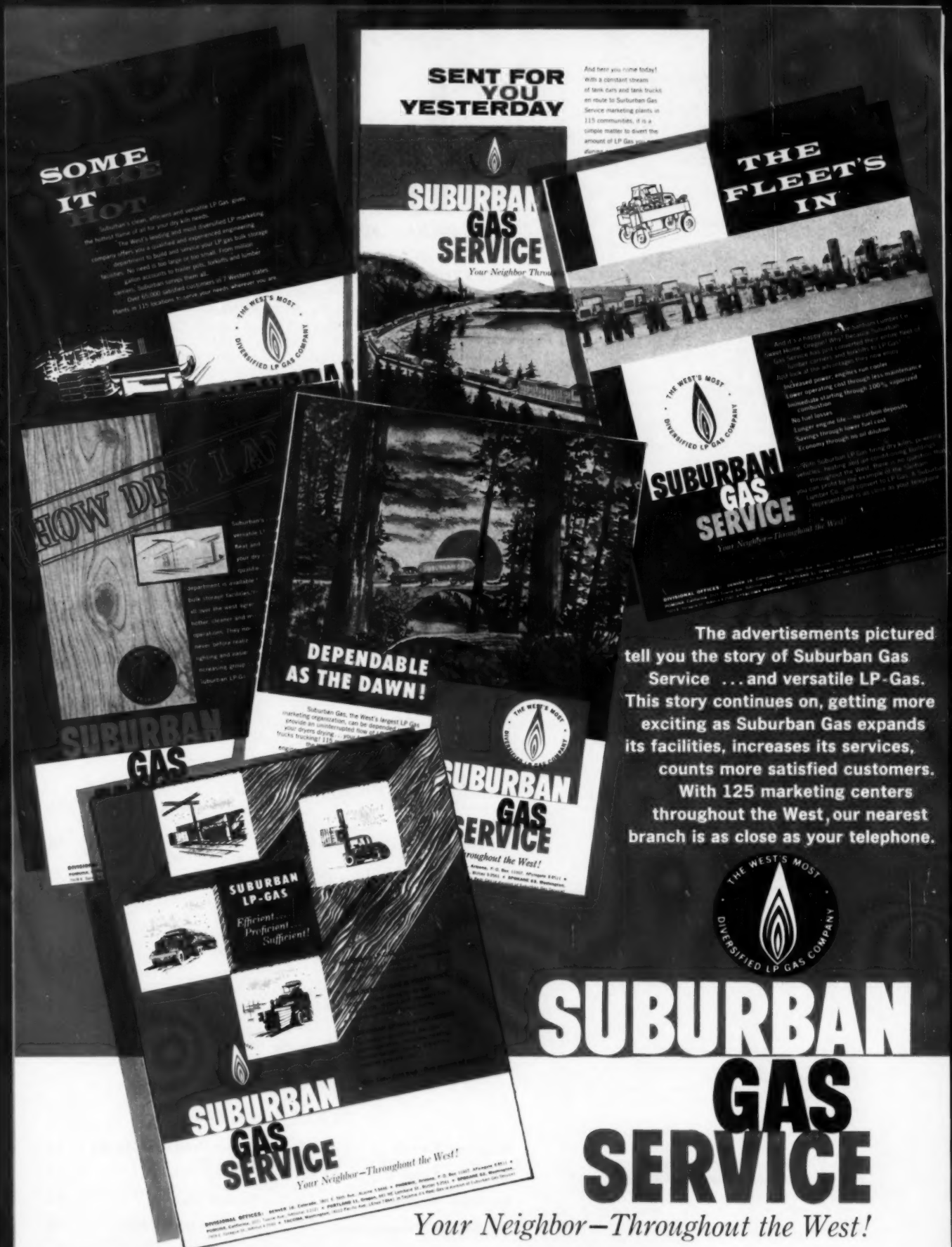
Sturdy concentric rollers are accurately shell-molded and mounted on cold-finished pins to assure free-turning action under load. This not only minimizes manual effort but also reduces wear on chain parts. In addition, rollers have smooth carrying surface and rounded edges that will not mar lumber. Chain body is made of malleable iron, generously proportioned for maximum strength under heavy loads. Broad base provides stability and adequate support of loads . . . wide bottom wearing surfaces extend chain life.

Contact your nearest Link-Belt office or authorized stock-carrying distributor for Folder 2729 on roller-top and for new Catalog 1050 covering the complete line of Link-Belt conveyor and power transmission products.

LINK-BELT

CHAINS AND SPROCKETS

LINK-BELT COMPANY: To Serve Industry There Are Link-Belt Plants, Sales Offices and Warehouses at San Francisco 24, Los Angeles 22 (Montebello), Seattle 4. Sales Offices and Warehouses at Portland 10, Spokane 10, Salt Lake City 1. Stock Carrying Distributors in Principal Areas. 55.170



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VOLUME 86 • NUMBER 10

OCTOBER, 1959

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THE Lumberman

LUMBER PLYWOOD BOARD WOOD MANUFACTURING

THE FRONT COVER: Time, Temperature and Humidity are the all-important factors in kiln-drying lumber. The staff-created, composite photo presents a clock's-eye-view of the kiln controls at Dwyer Lumber and Plywood Co., Portland, Ore. This issue of THE LUMBERMAN highlights today's lumber drying methods, equipment.

Get the Right Kiln Type for the Job. Fitting the dry kiln installation to the plant's needs is very important in lumber seasoning economics. 34

Principal Types of Kilns for Drying Lumber Products. 36

Drying is Important Step in Manufacturing for small operator who makes kiln pay dividend of salable product. 38

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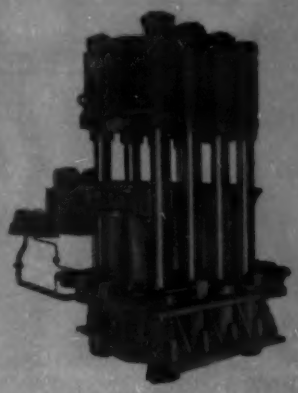
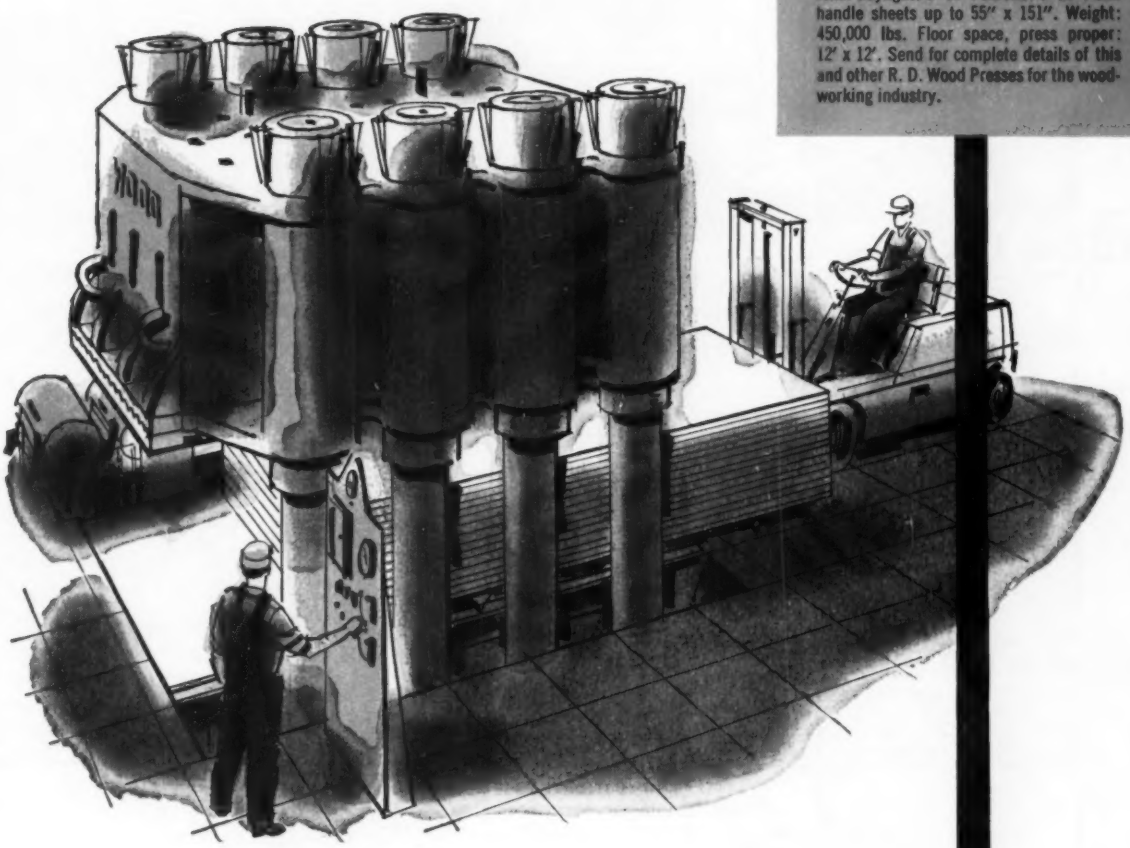
Put a Wood Press to work and get the money-saving advantages of smooth, dependable performance . . . long operation with low maintenance.

Reason: every Wood Press is the product of sound design, carefully selected materials, conscientious craftsmanship. This is why Wood Presses are known throughout industry for their trouble-free operation and fast, economical production. R. D. Wood has many standard press designs for producing hardboard, composition building boards, veneer, plywood and pressed wood—and engineers others for special jobs. Write for our catalog and engineering information. No obligation, of course.



R. D. Wood Combination Press for asbestos flat board and corrugated asbestos board. Operation of this fast working, high production machine may be manual, semi-automatic or fully automatic. Entire unit is self-contained with motor-driven pumping system, valves and controls. Capacity: 6400 tons. Daylight: 3'-10". Stroke: 3'-10". Can handle sheets up to 55" x 151". Weight: 450,000 lbs. Floor space, press proper: 12' x 12'. Send for complete details of this and other R. D. Wood Presses for the wood-working industry.



R. D. WOOD COMPANY

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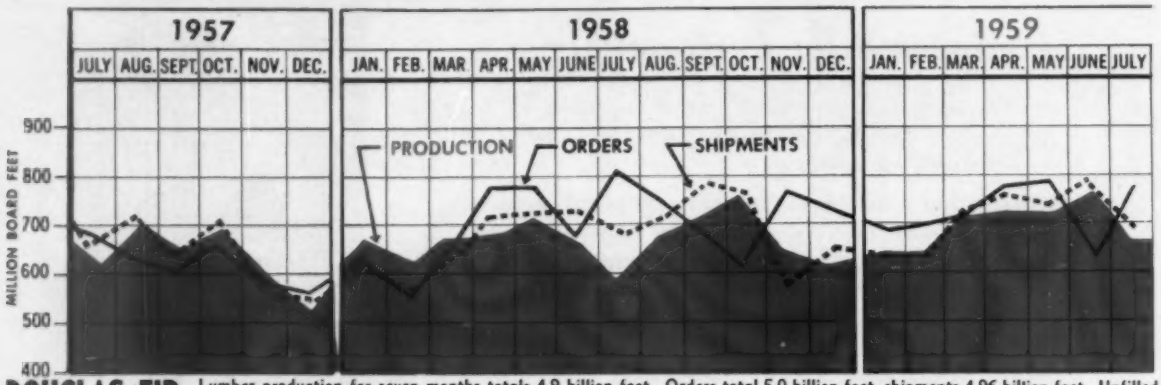
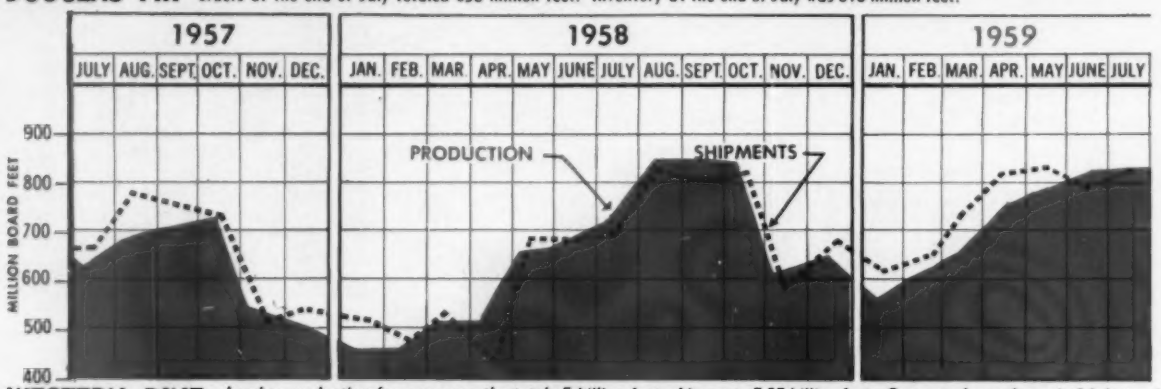
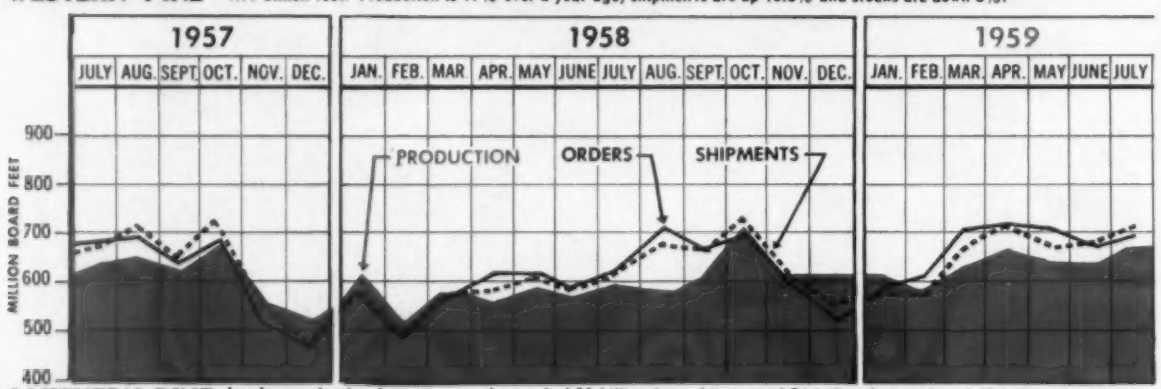
INDUSTRY TRENDS (See more TRENDS on page 58)



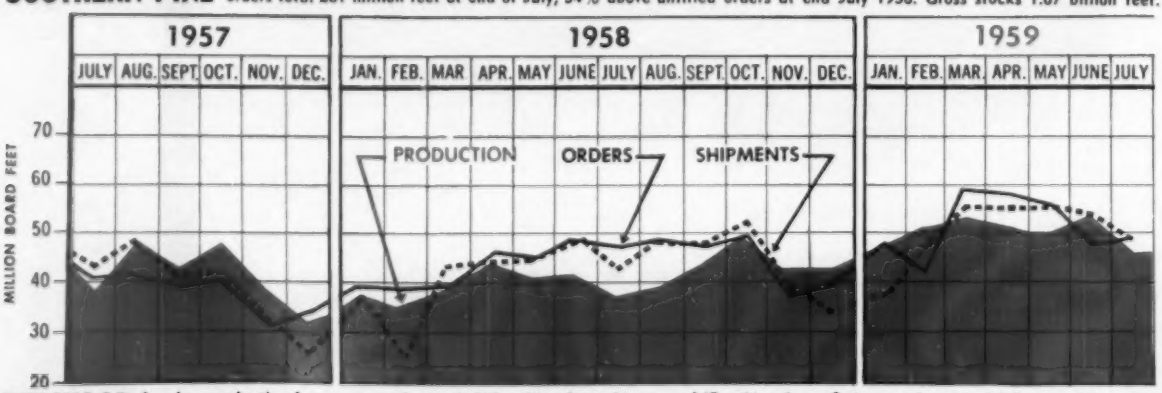
DOUGLAS FIR Lumber production for seven months totals 4.9 billion feet. Orders total 5.0 billion feet, shipments 4.96 billion feet. Unfilled orders at the end of July totaled 658 million feet. Inventory at the end of July was 816 million feet.



WESTERN PINE Lumber production for seven months totals 5 billion feet, shipments 5.25 billion feet. Gross stocks at the end of July total 1.77 billion feet. Production is 17% over a year ago; shipments are up 18.6% and stocks are down 6%.

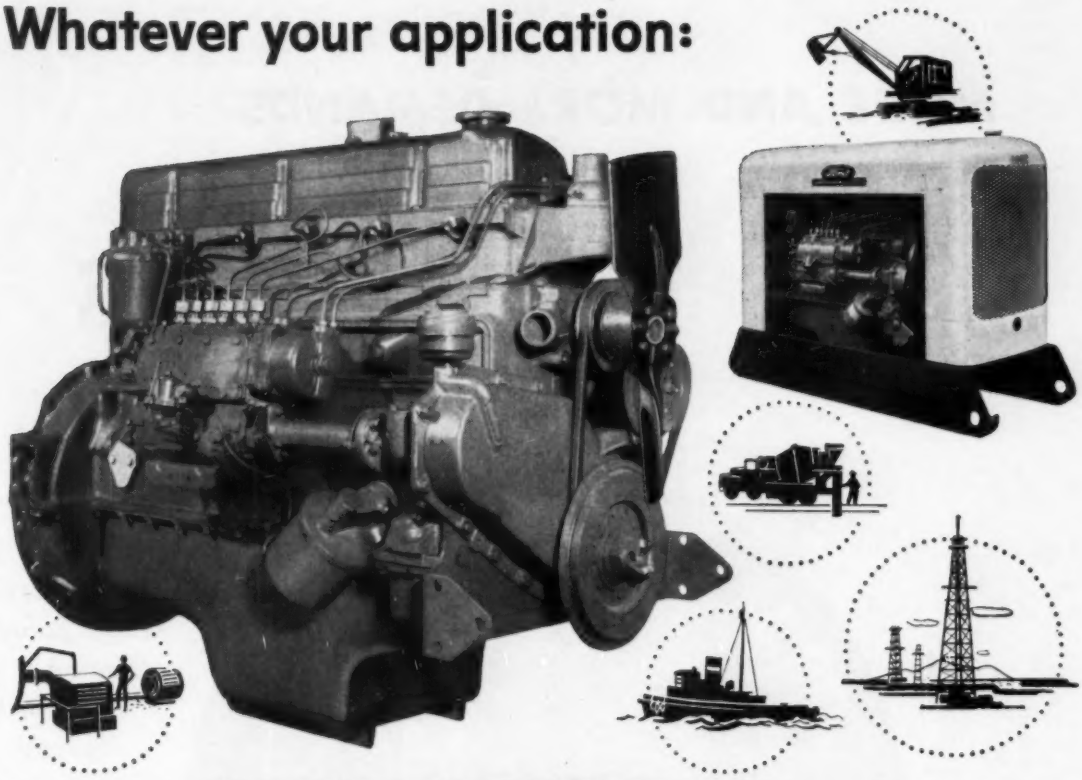


SOUTHERN PINE Lumber production for seven months totals 4.39 billion feet, shipments 4.54 billion feet, orders 4.63 billion feet. Unfilled orders total 261 million feet at end of July, 34% above unfilled orders at end July 1958. Gross stocks 1.67 billion feet.



REDWOOD Lumber production for seven months totals 355 million feet, shipments 347 million feet. Orders at the end of July were 361 million feet vs. 294 million feet a year ago. Stocks of 363 million feet compare with 376 million feet year ago.

Whatever your application:



Modern **FORD DIESELS** are designed to give you the dependability you need...the economy you're looking for!

If your job demands dependable, economical power day after day, consider a Ford 220- or 330-Diesel installation.

Simple in design and modern throughout, both Diesels offer heavy-duty 12-volt ignition systems for fast all-weather starting . . . overhead-valve construction for higher engine compression, more power . . . and four-way fuel injectors for efficient combustion, greater operating economy.

Quality-built by the most modern production methods, these Diesels are also low in initial cost. And because prompt Ford service is available almost everywhere, Ford Diesel users can count on a minimum amount of downtime.

For these reasons and more, a Ford Diesel can cut your operating costs . . . handle a greater work load. Therefore, specify Ford Diesels for original installation or for engine replacements. Write for details today.

ENGINE SPECIFICATIONS		220	330
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Number of Cylinders		Four	Six
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Displacement—Cubic Inches		220	330
Brake Horsepower	Dynamometer	60 @ 2250	96 @ 2250
	Continuous	48 @ 2250	77 @ 2250
Torque	Dynamometer	151#' @ 1600	236#' @ 1600
	Continuous	121#' @ 1600	189#' @ 1600
Compression Ratio		16 to 1	16 to 1

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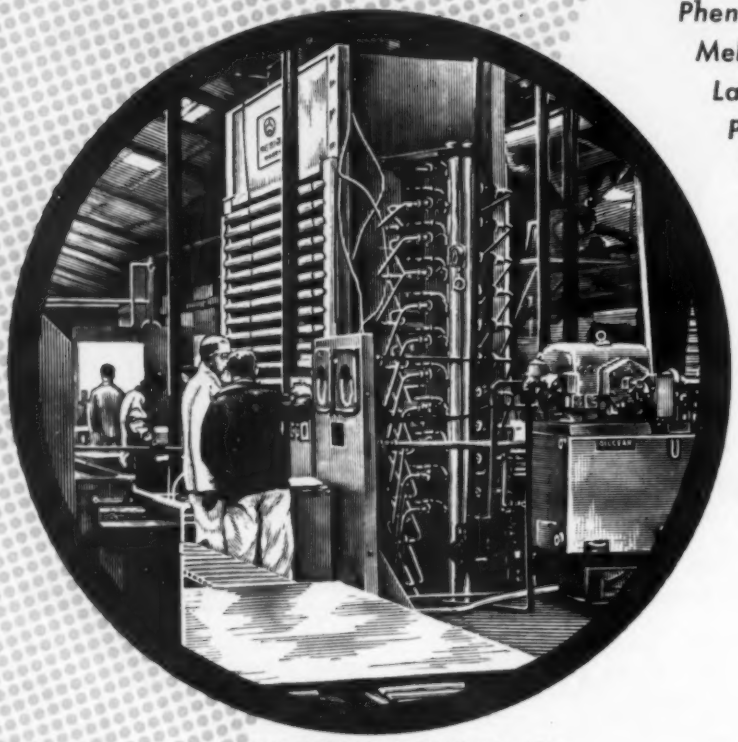

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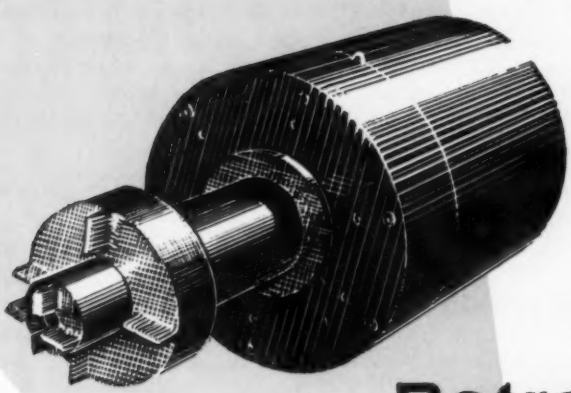
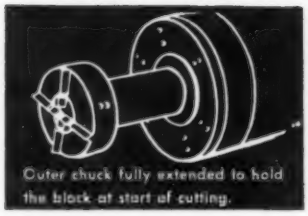
another First from Jackson

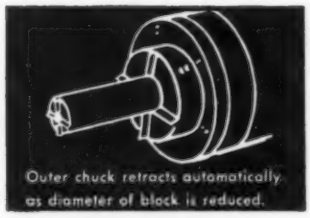


Retractable Chucking

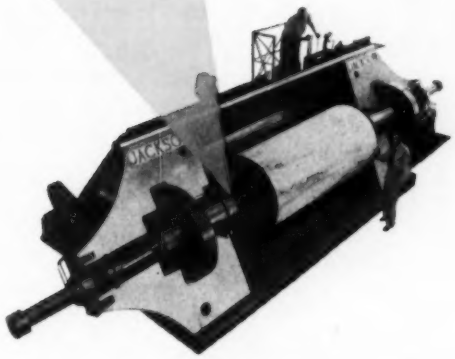
Fully automatic retractable chucking now available on the entire Jackson lathe series means higher yield . . . increased production . . . minimum waste . . . higher profits. Jackson Models equipped with retractable chucking and back-up roll allow for maximum accuracy of peeling. Rectractable chucking is available also on the Jackson Series PW Lathes. Available in all knife lengths up to 135".



Outer chuck fully extended to hold the block at start of cutting.



Outer chuck retracts automatically as diameter of block is reduced.



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JACKSON INDUSTRIES INCORPORATED

Birmingham, Alabama

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significant industry news

General Outlook . . .

CASCADES BUYS POLSON PLYWOOD . . . Cascades Plywood Corp., Portland, Ore., has purchased physical assets of Polson Plywood Co., Polson, Mont., and will spend $1.5 million in the next few years to increase capacity and modernize the operation. In the purchase, Cascades secured a commitment for 300 million feet of timber and plans to augment this with government timber purchases. Will Tiddy, former president general manager, is retained as general manager. Work at the plant will up production to 4.5 million feet, ⅜-inch basis, a month. The plant operates mainly on larch with some Douglas fir, Engelmann spruce and ponderosa pine.

B. C. STRIKE ENDS . . . The two-month-old strike of about 27,000 forest products industry workers on coastal British Columbia ended in mid-September when members of the IWA accepted a settlement proposed by provincial mediator Dr. John Deutsch. The proposal gives forestry industry workers a 20-cent an hour across the board pay increase on a two-year contract retroactive to June 15. There will be a 10-cent hourly increase the first year, another on June 15, 1960, and an extra 10 cents this year for tradesmen. The basic wage scale is now $1.82 an hour.

MAJOR TIMBER OFFERING IN CALIFORNIA . . . The largest sale of federal timber in California since 1906 is being advertised by the U. S. Forest Service. The sale consists of 85.5 million feet of timber in the Evans Flat unit on the Greenhorn Mountain appraised at $1.3 million. It is anticipated that a new sawmill will be built in an adjacent community to process logs from the sale. Species include 25 million feet of ponderosa and Jeffrey pine, 11.4 million feet of sugar pine, 28 million feet of white fir and 21 million feet of incense cedar. Bids are due November 18. Harvest will extend over eight years.

MANUFACTURERS, RETAILERS SEEK CLOSER RELATIONSHIP . . . Chief personnel of the National Lumber Manufacturers Association and the National Retail Lumber Dealers Association met recently in Washington, D. C., to lay the groundwork for a closer working relationship between the two groups. One major result of the meeting will be establishment of an NRLDA Advisory Committee to meet with NLMA staff members for an interchange of ideas particularly related to the National Wood Promotion Program and retail lumber dealers.

OREGON FOREST PRODUCTS FIRM SOLD . . . C. F. Campbell has sold Campbell & McLean, Inc., to George A. Campbell of Eugene, Ore., and associates. M. M. McLean had earlier sold his interest. The firm will now operate as Camac Veneer, Inc. The firm's plywood plant at Eugene was recently destroyed by fire. The company owns veneer plants at Eugene and Gold Beach. Other officials in the new ownership are Leonard C. Nelson, vice-president and general manager, and Varnon E. Kilpatrick, secretary-treasurer and sales manager.

OTHER MATERIALS AREN'T STABLE, EITHER . . . While wood will swell with an increase in moisture content and shrink when drying, it is quite resistant to temperature changes . . . and many other building materials aren't. The publication *Research News* says marble, limestone and concrete expand and contract with temperature changes from two to two and one-half times as much as wood. The variation in aluminum may be as great as four times that of wood.

More INDUSTRY NEWS on Page 24

Walt Andreassen,
Logging Manager,
International Paper Co.

"ESCO GRAPPLE PREVENTS PEELER LOG DAMAGE,"

. . . reports Walt Andreassen, Logging Manager, about this high lead show near Eugene, Oregon, operated by Vaughn Branch of International Paper Company's Long-Bell Division.

"The *ESCO* Heel Boom Grapple has eliminated the need for strapping our peeler logs," states Logging Manager Andreassen, "and it has reduced log damage and speeded the loading of peelers. This grapple has increased our safety factor, too, for it is no longer necessary to have a man work right under the boom."

This *ESCO* Heel Boom Grapple handles logs up to approximately 60 inches in diameter, and as small as 8 inches in diameter. The machine on this operation is a Lima 703. Andreassen commented, "We like the fact that there are replaceable bushings on this grapple, and the large fairlead at the top of the grapple reduces the wear on our closing line."

International Paper Company's Long-Bell Division also uses *ESCO* grapples at its Gardiner, Oregon, and Weed, California operations.

For complete details, see your nearest ESCO dealer, or write for your free copy of the ESCO Log Grapple catalog. There's an ESCO Log Grapple for every log handling job.

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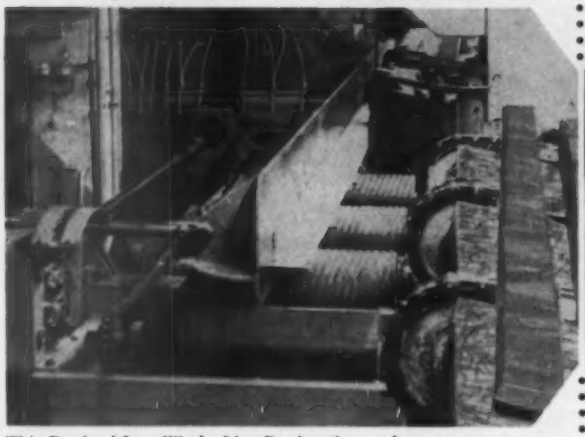
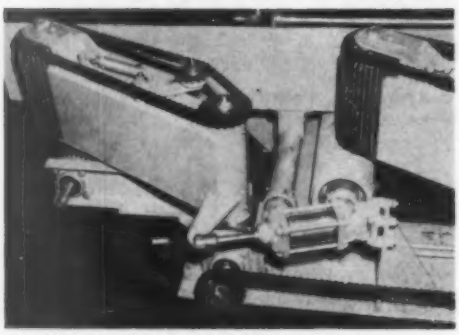
Portland Iron Works Resaw Line Bar engineered for SPEED



This Portland Iron Works Line Bar has the quadrant type remote controller in use at Georgia-Pacific, Toledo, Oregon. Air cylinder-operated set works shown in rear center.

This Portland Iron Works Line Bar with manual control is in operation at Guy Roberts Lumber Co. in Toledo, Oregon.

Line Bar Controls adjust instantly!



Portland Iron Works Line Bar has effortless remote control set works for quick adjustment. Preselective optional.

Time and timber waste are eliminated with Line Bars engineered by Portland Iron Works. Manual or remote controls optional, plus availability of preselection makes operation easy and fast.

Cheater controls flick quickly from scant to strong. Air cylinders open press rolls a full 24", a touch on their control button brings positive, sudden response. Press rolls are driven through enclosed gear boxes with anti-friction bearings throughout. No open gears, no twisted V-belts.

Line-up fence of the PORTLAND IRON WORKS Line Bar is fully adjustable. Easy-shift quadrant permits easy manual operation. Remote control through quadrant type or push button controllers available, with preselector if desired.

Table chains are enclosed and drive chains are opposite feed table. With Line Bars engineered by PORTLAND IRON WORKS you will find the answer to your production problems.

PORTLAND IRON WORKS
INCORPORATED

1335 N.W. Northrup Street
Portland 9, Oregon
CApitol 7-1107
Teletype PD565

experience is our best designer

PORTLAND IRON WORKS · PORTLAND OREGON ·

engineers
machinists
founders
established 1882

This grease withstands the toughest kind of track roll bearing punishment

Tracrol Lubricant seals out dust, dirt, sand and mud. It is water resistant . . . protects even after continuous immersion in water. Because Shell Tracrol Lubricant is an EP lubricant that is stringy and tacky, it stays in the bearing longer, helps reduce down time and saves on lubrication.

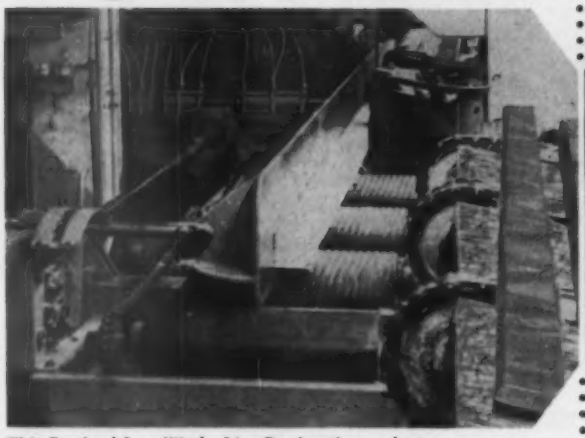
For complete information on how you can put Shell Tracrol Lubricant to work protecting your equipment, call or write: Shell Oil Company, 50 West 50th Street, New York 20, New York, or 100 Bush Street, San Francisco 6, California.
In Canada: Shell Oil Company of Canada, Limited, 505 University Avenue, Toronto 2, Ontario.

SHELL TRACROL LUBRICANT

—the preferred grease for track roll bearings

SHELL

Portland Iron Works Resaw Line Bar engineered for SPEED



This Portland Iron Works Line Bar has the quadrant type remote controller in use at Georgia-Pacific, Toledo, Oregon. Air cylinder-operated set works shown in rear center.

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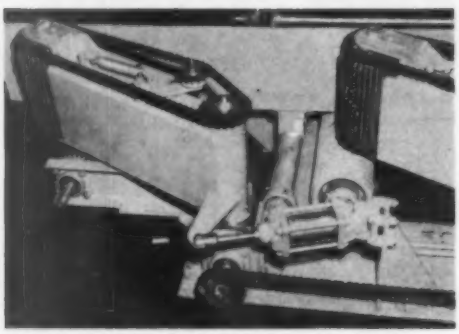
Line Bar Controls adjust instantly!



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SHELL TRACROL LUBRICANT

—the preferred grease for track roll bearings

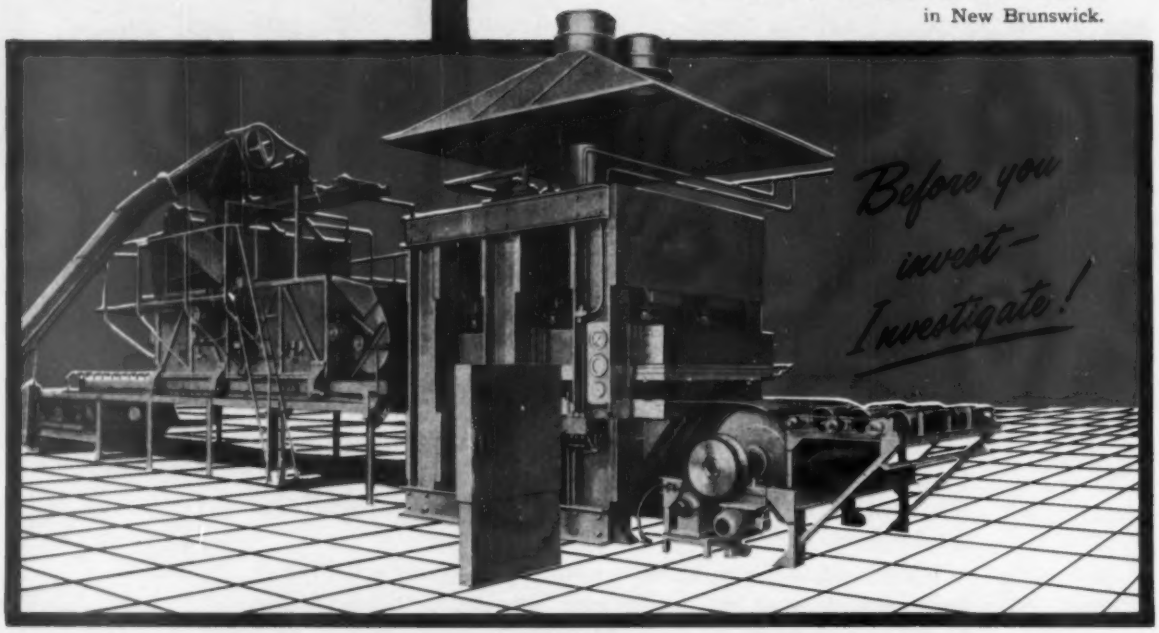
SHELL

More than 30* successful installations now in operation throughout the world prove the superiority of the

Bison System

- **Producing the world's finest flakeboard even when using planing mill shavings**
- **Semi-automatic operation**
- **Lowest installation and production costs per daily ton**
- **Exclusive single opening press installation and versatile multiple-press installation**

* A multiple-press 110,000 bft mill is now being installed at Albany, Oregon, and a single-opening press in New Brunswick.



World-famous Bison Board offers many exclusive features worth your investigation — superior finishing and machining qualities inherent in its "graduated three layer" structure; lower finished product cost through savings in raw materials, as this is the only system that can produce a high quality board with 3500 M.O.R. when using 75% shavings.

Also investigate the exclusive glue mixing machine, lowering high cost for resins in making boards of high strength and screw-holding properties.

Every Bison System installation is test-run and proved before shipment, eliminating costly mistakes and start-ups. We can supply flakeboard *made from your own raw materials* run through a standard production plant in advance of order and without obligation. See us for details.

Films and literature available. Call, wire or write:

Sole American Distributor:

SODERHAMN MACHINE MANUFACTURING COMPANY

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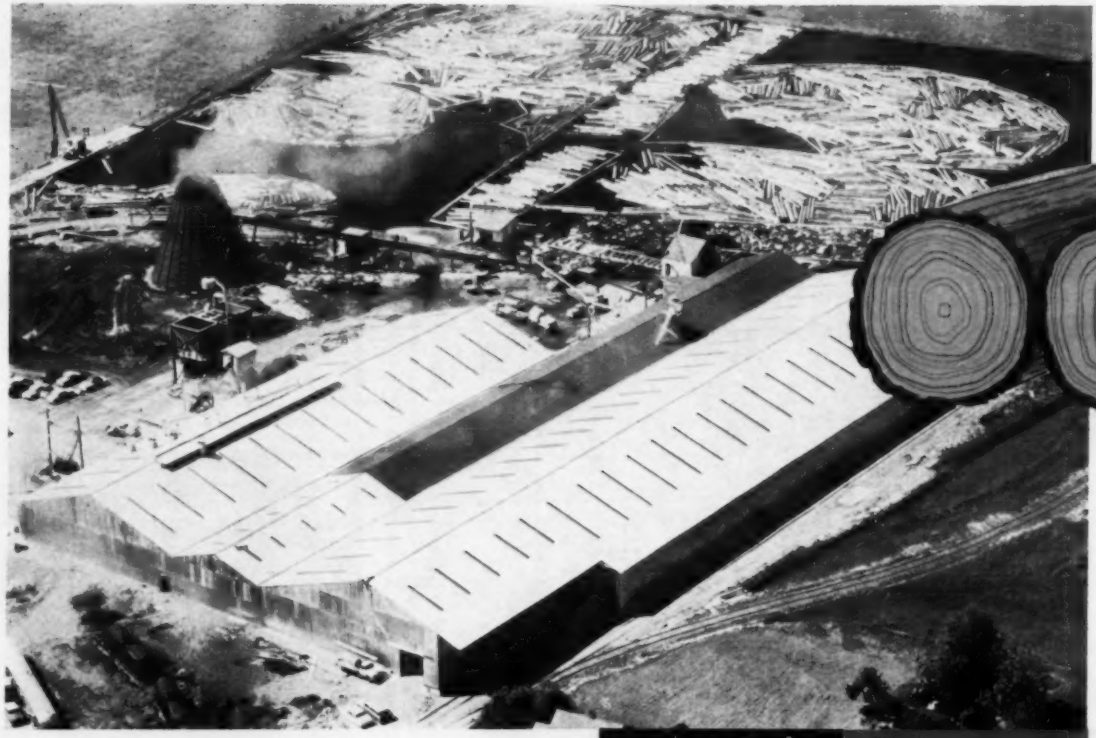
West Coast: 9442 S.W. Barbur Blvd., Portland, Oregon

British Columbia: Galbraith & Sulley, Vancouver

MODERN, ROOMY, FIRE-SAFE SOULE' STRUCTURES

for new or expanding plywood plants



5406

Soulé steel structures are the modern way to achieve profitable plywood plants. You specify exact width, length, ridge height—and Soulé customizes your plant with mass production economies. You get vast clear area for efficient layout of manufacturing operations; and, because they are all-steel, Soulé structures help you save dollars on fire insurance.

Photo shows Inply Corporation's modern new Independence, Oregon plywood plant. Original operation was housed under the shaded roof area. Soulé structures gave Inply more useable floor area, dry, rugged, safe corrugated steel roof and side walls, and minimum maintenance.

Soulé
LEADER IN STEEL BUILDINGS

SOULE' STEEL COMPANY

SAN FRANCISCO • PORTLAND • LOS ANGELES • SEATTLE • SPOKANE • PHOENIX • DALLAS • SALT LAKE CITY

engine power
BY CATERPILLAR

HOW MUCH POWER DOES YOUR MILL NEED?

Under-power and over-power eat into profits. But a formula can help you figure the exact amount your mill should have. Here's why you should take advantage of it—

When you install an engine in your mill, you face two dangers. Both are costly—but in different ways.

First the engine you choose may not have enough power for your production rate. This may be the result of figuring power needs without enough room for growth. It may come of buying more on the price of an engine than the engine's performance. Either way, an undersize engine cuts efficiency. It's under strain, isn't up to the job and wears out before it should.

If the engine's too small, it can slow a mill's growth. Or, to keep growing, the owner must trade the engine before he's gotten his money's worth of use.

On the other hand, let's look at a mill owner who buys too large an engine. He's paying out profits for horsepower he'll never use. He'll be buying fuel for the excess horsepower that will do no work. It's clear that too much engine cuts into profit.

AVOID THESE PITFALLS

You can avoid these expensive mistakes. There is a way to select the engine that fits your mill . . . that provides the power you need for growth . . . that will match your needs when you reach full capacity.

It is possible to determine the power a sawmill needs according to a formula. This formula takes into account the size of your equipment, such as saws, and how much auxiliary equipment there is, the kind of wood and the rate of production. While many conditions prevent a guide of this kind from being 100% accurate, it is a useful tool in eliminating much of the guesswork when you make the most important decision in your business—power selection.

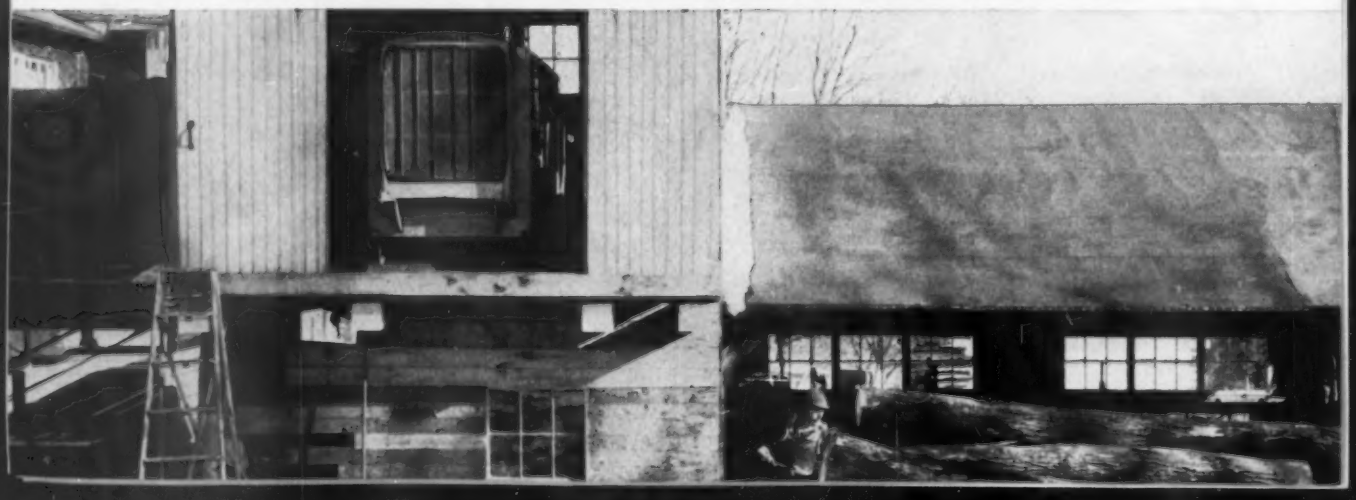
USE IT FREE

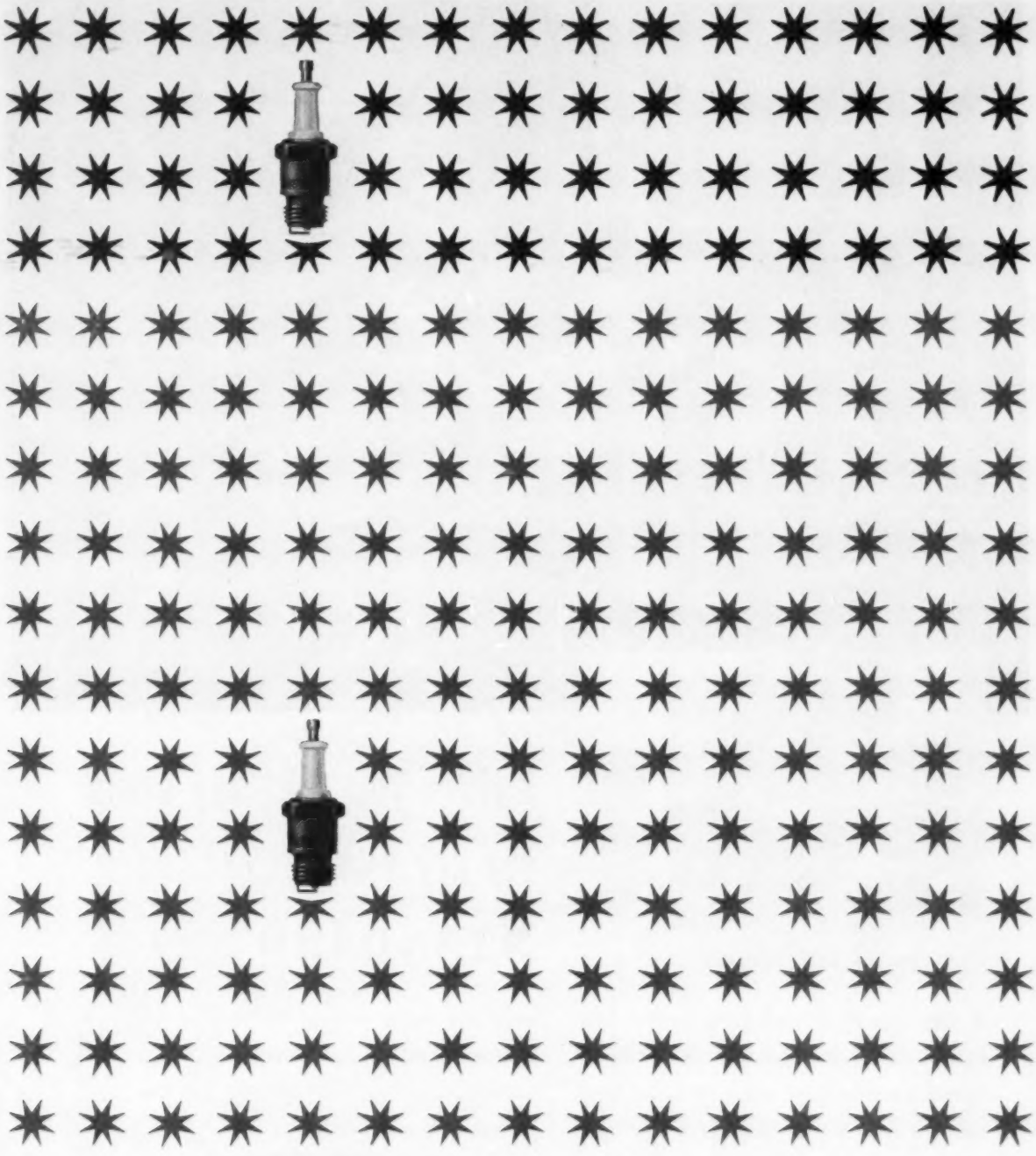
You can get this formula from your Caterpillar Dealer or by writing direct to us. There is no cost. If you like, your Caterpillar Dealer Engine Specialist will do the work for you. He'll visit your mill and get all the data. Then he'll figure your most economical engine investment and give you the answer according to formula. He'll even show you how you now stand on power—whether too little or too much is cutting profits.

There is no charge or obligation for this service. Why not call your Caterpillar Dealer or write us now? Simply request a Cat Sawmill Power Guide. If you write, also request an interesting new booklet, "More Board Feet—Less Cost."

CATERPILLAR
Engine Division, Caterpillar Tractor Co., Peoria, Ill., U.S.A.
Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

West Stephentown, N. Y., Clarence A. Fiske's sawmill averages 8,000 bd. ft. of sawed for grade in an 8-hour day. His highly efficient mill saws hardwoods, such as birch, cherry, oak, ash and maple. Mr. Fiske uses two Cat Diesel Engines, a D318 and a D342, to furnish power for his growing mill.





WITH MOBILGAS R SPARK PLUGS LAST UP TO THREE TIMES LONGER

The phosphorus additive in Mobilgas R gives heavy and light-duty trucks up to 300% more spark plug life. Phosphorus is just one of the six different additives in Mobilgas R. No other *regular gasoline* has such complete additive strength.

YOU BENEFIT DIRECTLY WITH:

- *Longer Spark Plug Life*
- *Less Down Time*
- *Power Carburetor Boil Outs*
- *Longer Piston Life*
- *Powerful, Thrifty Performance*
- *Fewer Repairs And Overhauls*

Mobil

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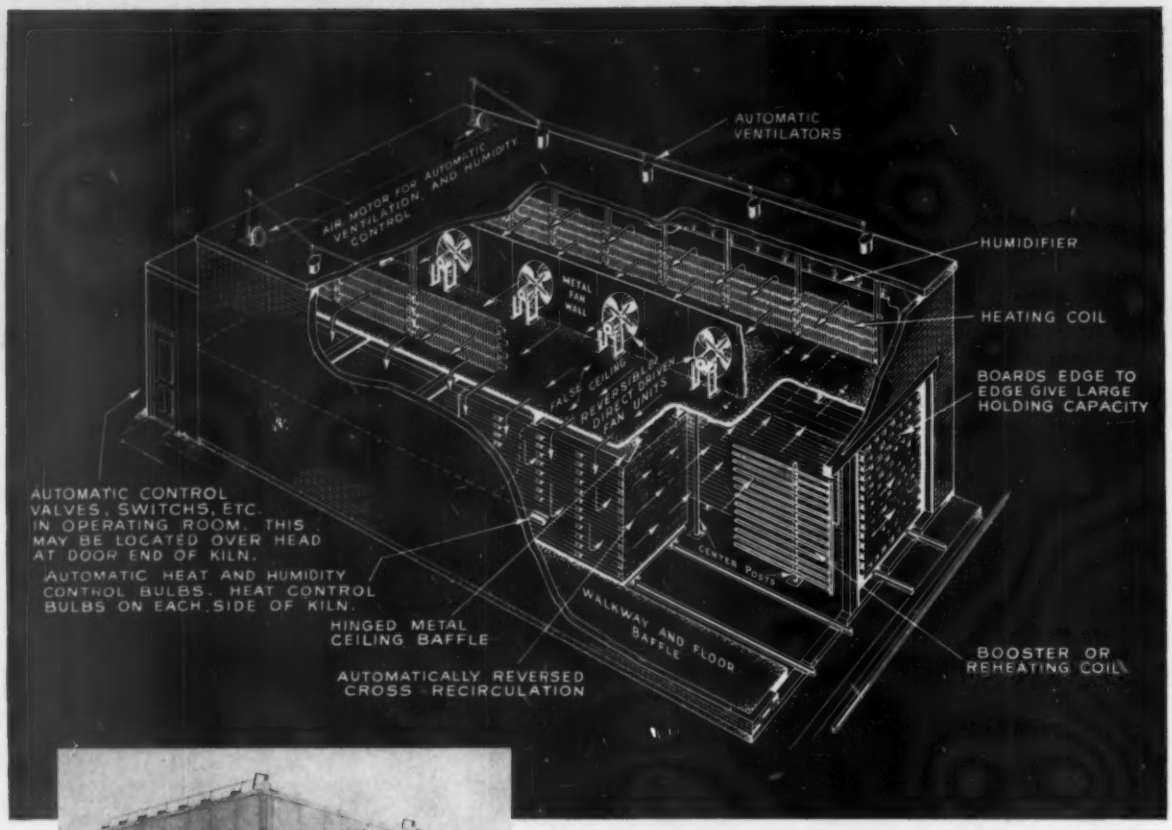
SERVING THE WEST WITH MOBILGAS—MOBILFUEL DIESEL—MOBIL LUBRICANTS


AUTOMATIC VENTILATORS
AIR MOTOR FOR AUTOMATIC VENTILATION CONTROL AND HUMIDITY
HUMIDIFIER
METAL FAN WALL
HEATING COIL
FALSE CEILING
REVERSIBLE DIRECT DRIVEN FAN UNITS
BOARDS EDGE TO EDGE GIVE LARGE HOLDING CAPACITY
AUTOMATIC CONTROL VALVES, SWITCHS, ETC. IN OPERATING ROOM. THIS MAY BE LOCATED OVER HEAD AT DOOR END OF KILN.
AUTOMATIC HEAT AND HUMIDITY CONTROL BULBS. HEAT CONTROL BULBS ON EACH SIDE OF KILN.
CENTER POSTS
WALKWAY AND FLOOR BAFFLE
HINGED METAL CEILING BAFFLE
AUTOMATICALLY REVERSED CROSS RECIRCULATION
BOOSTER OR REHEATING COIL

Before you O.K. any plans for dry kilns...get the STANDARD story

• Get the Standard story now—because it may pay your company dividends for years and years to come. See how Standard's 72 years of specialization assures you the highest quality engineering and manufacturing. Ask owners about Standard's reputation for integrity . . . how Standard solidly backs the quality and workmanship of every Standard Dry Kiln. Have your secretary write or tear out this advertisement and mail it today with your name, company and address for the complete Standard story.

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WESTERN STATES REPRESENTATIVE FOR

STANDARD DRY KILNS

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SIMONDS Thin Planer Knives are √PERFECTLY MATCHED √PERFECTLY TEMPERED to give you smoother finishes longer!

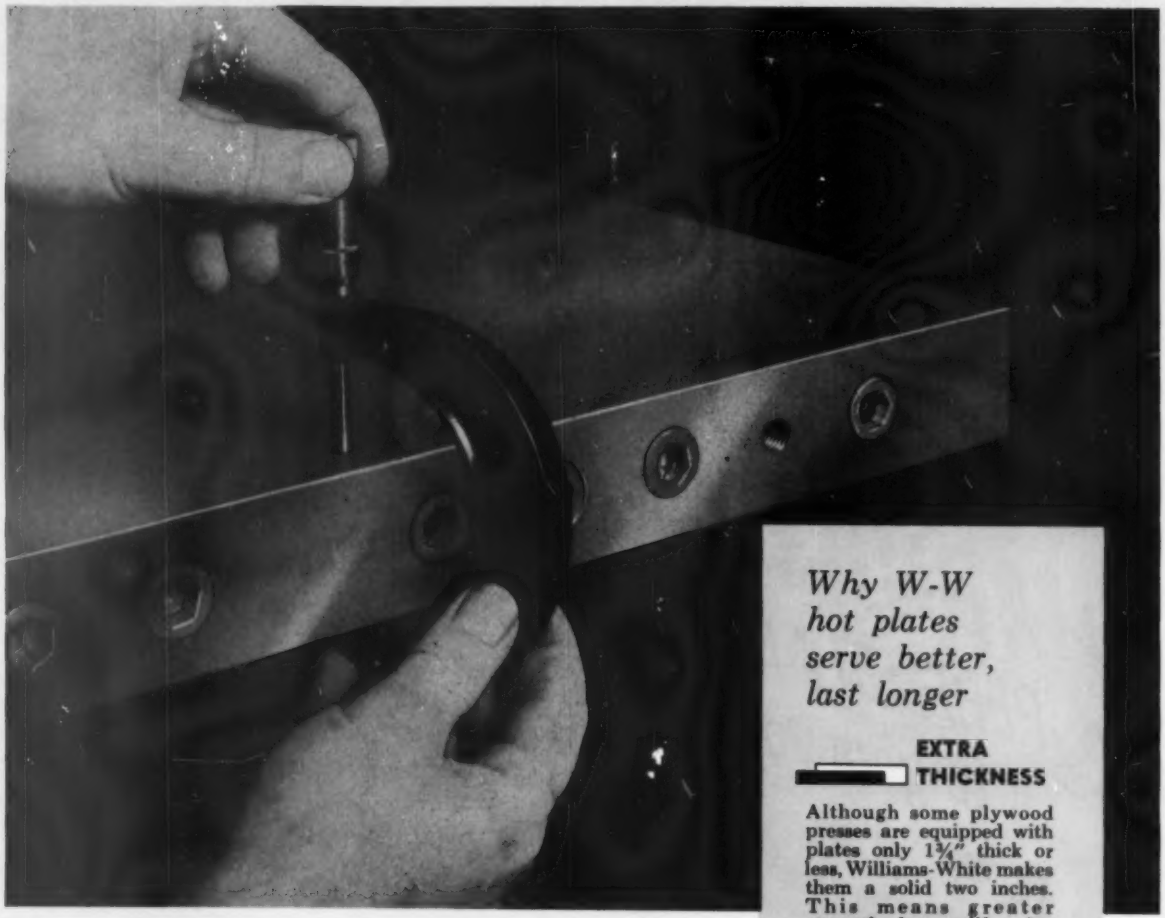
When you place a pair of Simonds Thin Planer Knives opposite each other in the head of your planer you're assured of the smoothest possible finishes. That's because Simonds Knives are precision ground to exact thicknesses and perfectly balanced in pairs to make your planer head vibration-free.

Electrically controlled heat treating furnaces together with Simonds own exact steel analysis for specific applications result in Simonds Thin Planer Knives being tougher, more heat-resistant and better edge-holding than ordinary knives.

Equip your planers now with Simonds Thin Planer Knives . . . they'll turn out smoother surfaces and cost you less in the long run. They're wrapped and stocked in perfectly matched pairs by your nearby Simonds Industrial Supply Distributor.

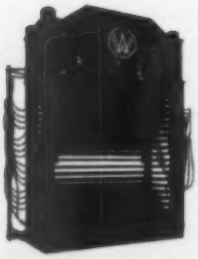
SIMONDS
SAW AND STEEL CO.
FITCHBURG, MASS.
SIMONDS
Industrial Supply
DISTRIBUTOR

Factory Branches in Boston, Chicago, Shreveport, La., San Francisco and Portland, Oregon, Canadian Factory in Montreal, Que., Simonds Divisions: Simonds Steel Mill, Lockport, N. Y., Heller Tool Co., Newcomerstown, Ohio Simonds Abrasive Co., Phila., Pa., and Arvida, Que., Canada



the measure of Performance Reliability for more than a century

WILLIAMS-WHITE Hot Plate Presses



Production capacity per dollar invested. Minimum downtime. Low maintenance costs. Economical operation. These are the factors that add up to performance reliability. And these are the reasons *more Douglas fir plywood has been made on Williams-White presses than on any other kind.* For a complete review of the elements that combine to make a performance-reliable hot plate press for plywood or particle board production, write for Bulletin No. 200-A.

106th year

WILLIAMS-WHITE & CO.
800 Third Avenue, Moline, Ill., U. S. A.

SALES AGENTS: **Portland, Ore.:** Allied Northwest Machine Tool Corp.; **Seattle:** Perine Machinery & Supply Co., Inc.;

Why W-W hot plates serve better, last longer

EXTRA THICKNESS

Although some plywood presses are equipped with plates only 1¾" thick or less, Williams-White makes them a solid two inches. This means greater strength, longer life. Accidental damage to the face of the plate may be machined away—not once but several times—due to the extra margin of metal.

SUPERIOR STEEL

Plates for Williams-White hot plate presses are made from solid silicon-killed fire-box quality steel—free from laminations—the very best for the purpose. This quality provides a surface free of imperfections and assures uniform heat transmission.

ACCURACY FINISH

All W-W hot plates have steam passages drilled from the solid, uniformly accurate. Williams-White hot plates are then planed to the close tolerances and fine finish that have distinguished Williams-White press plates in the field. No grinding has as yet matched such accuracy.

FOR HEAVY DUTY HANDLING WHERE THE GOING IS ROUGH

Four new HYSTER Lift Trucks with 4-Wheel Drive

To meet the needs of the lumber industry Hyster now offers four new Challenger 150/200 trucks with 4-WHEEL DRIVE in 15,000, 16,000, 18,000, and 20,000 lbs. capacity. You can operate these job-proven Challengers profitably on steep grades, in mud or sand, and over rough terrain where lift truck use has formerly been impractical.

For specifications and performance data contact your Hyster dealer or write for brochure No. 1690 to Hyster Company, P.O. Box 847, Danville, Ill.

HYSTER COMPANY
INDUSTRIAL TRUCK DIVISION

Factories: Portland, Ore. • Danville, Ill. • Peoria, Ill. • Kewanee, Ill. • Nijmegen, The Netherlands • Glasgow, Scotland • Sao Paulo, Brazil • Sydney, Australia (licensee)

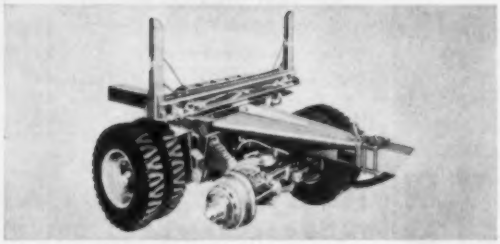
There is a comprehensive line of lightweight, high-capacity Fruehauf Platforms. Longitudinal or cross board platforms with deep, husky main frames, or sturdy but lighter-weight "integral" frame units in semi or 4-wheeler models are all available for fast delivery at all times.

Rugged Fruehaufs For Loggers And Lumbermen!

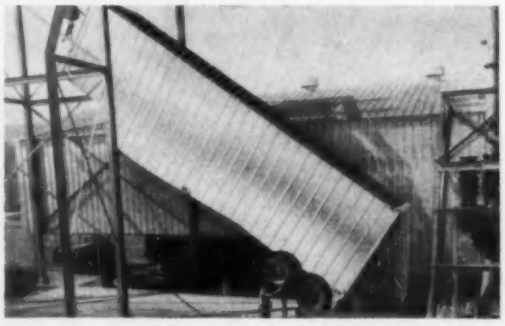
Whether you haul giant timber, wood chips, or finished lumber, Fruehauf builds a rugged, economical Trailer for your job. Throughout the West, in the really tough jobs, more Fruehaufs are hard at work than any other kind of Trailer.

There is a big advantage to owning a Fruehauf over and above its advanced design and precision-construction. That advantage is the reputation and facilities of the manufacturer. Wherever your Fruehauf travels, however long you operate it, there is always a Fruehauf Branch nearby ready to provide instant service and replacement parts.

Downtime is costly, and Fruehauf facilities minimize it, to increase *your* profits. Your *Fruehauf* Trailer will never be an "orphan."



The close-coupled TL-55, shown here, is the workhorse of the complete Fruehauf line of Fruehauf Logging Trailers and logging truck equipment. There are also two lightweight highway units, one of which is equipped with hydraulic scales, and three higher-capacity units for the biggest timber.



Wood Chip Trailers

Closed Cubeliner Vans

FRUEHAUF TRAILERS

For Forty-Five Years— More Fruehauf Trailers On The Road Than Any Other Make!

World's Largest Builder of Truck-Trailers

FRUEHAUF TRAILER COMPANY

Western Manufacturing Plants: Los Angeles and Seattle

SALES AND SERVICE: Los Angeles • Oakland • Fresno • Sacramento
Portland • Seattle • Spokane • Phoenix • Billings • Salt Lake City
Denver • El Paso

Norman E. Howard, co-partner, Howard Lumber Co., Mayfield, Washington

"UNOBA ...good grease anywhere"

"Union Oil products and service have more than satisfied us for nearly 20 years.

"Union's Unoba Grease is our choice for general mill lubrication because we find we can safely use it throughout the sawmill, and we don't have to worry about someone using the wrong gun—it's all Unoba and that's good grease anywhere."

Mr. Howard is right! Unoba Grease is truly a multi-purpose grease, specially compounded of high V.I. 100% pure paraffin base oils, barium-lithium soap bases plus effective oxidation inhibitors. This makes Unoba a grease that is unequalled in combating the conditions of heat, moisture, shock and corrosion common to every sawmill operation. Try it: you'll agree.

UNION OIL COMPANY OF CALIFORNIA 76

UNION OIL CENTER, LOS ANGELES 17, CALIFORNIA, U. S. A.

RODDIS PLYWOOD ADDS PLANTS, TIMBERLAND . . . Owens-Illinois Plywood Co. timberland and plants in Vermont and Princeville, Quebec, Canada, have been purchased by Roddis Plywood Corp. The move strengthens Roddis' position in the hardwood plywood field. The timber is chiefly hardwood. The plants include: a single-ply veneer mill producing mainly rotary cut birch at Princeville; a plant producing doors, hardwood plywood and movable partitions at North Troy, Vt., and a plant manufacturing hardwood plywood at Hancock, Vt. The Vermont plants have prefinishing facilities.

WOOD TREATING FIRMS CONSOLIDATE . . . J. H. Baxter & Co., San Francisco, Calif., has acquired a part ownership in West Coast Wood Preserving Co., Seattle, Wash. The resulting firm will be called Baxter-Wyckoff Co. Officers include Walter L. Wyckoff, former head of West Coast, as president, and Charles A. Chadbourne, and Alfred X. Baxter, vice-presidents. West Coast operates two of the largest pressure treating plants on the west coast, at Seattle and on Bainbridge Island in Washington.

ALASKA PINE CHANGES NAME . . . Rayonier Canada, Ltd., is the new name of Alaska Pine & Cellulose, Ltd., Victoria, B. C. Decision to change the name resulted from the changing character of the firm's products. Rayonier was chosen as a key in the new name because Rayonier, Inc., is the principal shareholder in the firm.

At the Plant Front . . .

NEW CANADIAN PLANT PLANNED . . . Weldwood Plywood, Ltd., subsidiary of U. S. Plywood Corp., has purchased an interest in D. D. Millar & Associates, Ltd., Montreal, Canada. A new plant will be built at Louiseville, Que., to make Weldwood architectural and industrial building products. D. D. Millar continues as president of Millar Associates. George D. Goodfellow of Weldwood becomes vice-president.

PRE-CUT HOUSE PLANT PLANNED . . . The Oerding Forest Products mill near Roseburg, Ore., plans to enter the pre-cut housing field, utilizing lumber and plywood produced in the area. The type of unit to be produced is similar to those being erected by the federal government in military housing projects. The system, however, is adaptable to private housing. W. A. Oerding, owner of the plant, calls his pre-cut house the Ca Part house.

OREGON PAPER PLANT PLANS DEVELOPING . . . Tentative plans for a $30 million pulp and paper mill in the Bend, Ore., area are developing and directors of Powell River Co., Ltd., Vancouver, B. C., and Brooks-Scanlon, Inc., Minneapolis, Minn., are hopeful that construction can be started within 16 months. A bid call is being readied for barking and chipping facilities at the Brooks-Scanlon plant which will be the first step in the project. Studies are continuing on the location.

ALASKA'S FIRST TREATING PLANT . . . Kopper Co., Inc., will build Alaska's first wood preserving plant at Whittier and expects to be operating by next July. The original plant will have one treatment cylinder. It will be capable of pressure-treating with creosote, Wolman salts and with special chemicals to make the wood non-combustible.

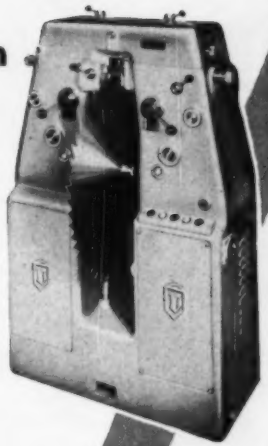
STUD MILL DUE IDAHO . . . Regus Stud Mill, Inc., plans to build a stud mill at St. Maries, Ida., to cut about 10 million feet a year. The mill will cut 2x4's down to three-foot lengths. Species cut will include red and white fir, hemlock and larch.

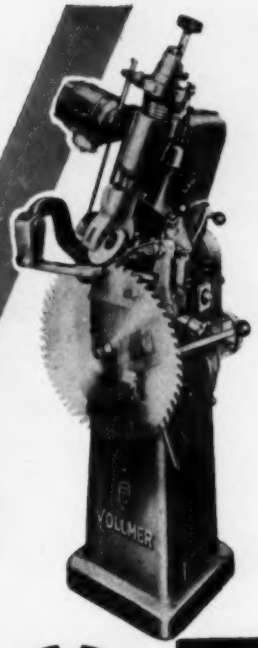
More INDUSTRY NEWS on Page 28

Automation in the Filing Room

Pioneered by Vollmer

Automatic Swaging and Shaping
Fully Automatic Gang Saw Sharpening
Electronically Controlled Setting





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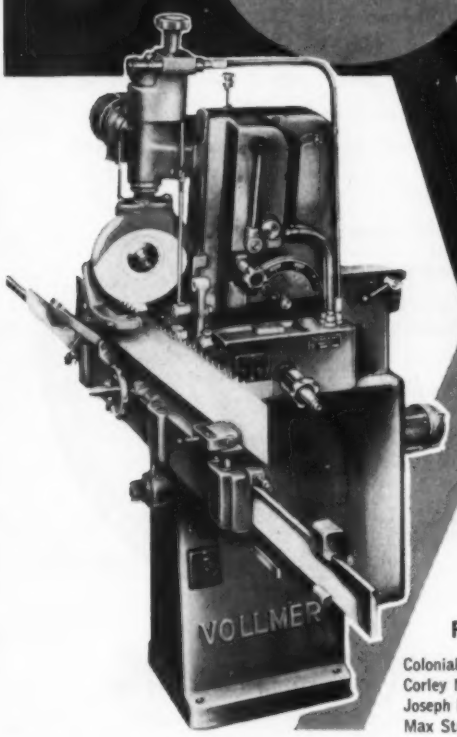

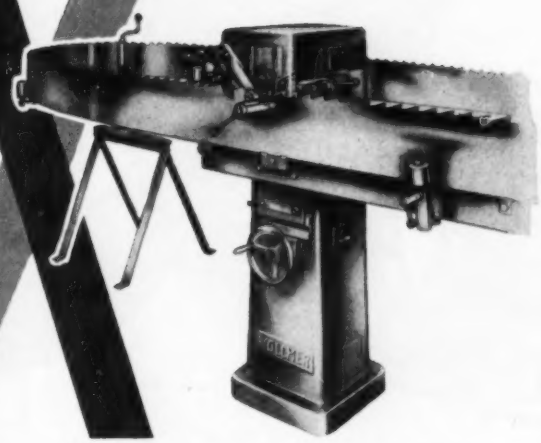

For complete information — write, wire or phone one of our distributors:

Colonial Saw Company, 679 E. Genesee Street, Buffalo 11, N. Y., Tel. MAdison 9248.
Corley Manufacturing Company, P. O. Box 471, Chattanooga 1, Tenn., Tel. MA 2-1161.
Joseph Roediger & Co., Ltd., 22 Martin Road, Hamilton, Ont., Canada, Tel. LI 5-6977 & LI 9-9147.
Max Sturm, Industrial Saws & Supplies, 1213 S. Hawthorne Blvd., Hawthorne, Calif. Tel. OSborne 5-3010.

Combination Infeed for Fork and/or Straddle Truck.
Automatic Stacker with Grading Chain.
Receiving Hoist for Stickered Packages.
Out-bound Powered Rolls.
Stickering done even while Sticker is laying course.
Stick Slide and Stick Trough for unstacking.
Hopper for accumulation of Sticks from Unstacker.
LAWSON
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G-P PLANS SPRINGFIELD, ORE., PLY PLANT . . . The first major development related to the recently acquired Booth-Kelly properties will be a new plywood plant adjacent to the Springfield Plywood Corp. plant in Springfield, Georgia-Pacific Corp., reports. The new plant, the existing plywood plant which G-P owns and the former Booth-Kelly sawmill will all share a common storage pond and sorting boom. The new plywood plant will have a capacity of 10 million square feet a month and is expected in production in the spring of 1960.

OREGON PLYWOOD CORP. TO REBUILD . . . A million dollar plywood plant at Sweet Home, Ore., destroyed by fire in June, will be rebuilt, according to Floyd Van Horn, manager of the Oregon Plywood Corp. The plant will be located at the site of the former operations and will be of similar layout. Capacity of the previous plant was 30 million square feet a year.

NEW MILL IN OREGON . . . A sawmill, designed to cut 25,000 to 30,000 feet a day is near production in Clatsop County in Oregon, just west of Knappa. The all-electric plant is owned by Arthur Leslie and Vernon Larson, Svensen, and Ernest Wentzel, Portland.

MONTANA PLYWOOD PLANT CONSIDERED . . . Vancouver Plywood Co., Vancouver, Wash., is studying the possibility of building a $2.5 million plywood plant at Missoula, Mont. Don Plummer, Jr., general manager of Vancouver Plywood, said company officials are studying the area prior to making a decision.

NEW VENEER PLANT IN OREGON . . . Rosboro Lumber Co. has started construction of a new veneer plant which will be operated in conjunction with its sawmill at Springfield, Ore. The plant will have a 10-foot veneer lathe and other standard green end equipment. Production is anticipated early in 1960.

Personalities . . .

WEYERHAEUSER PROMOTES DOUGLAS . . . Robert S. Douglas has been named vice-president of the lumber and plywood division of Weyerhaeuser Company. He is presently executive vice-president of Weyerhaeuser Sales Co., which becomes a part of Weyerhaeuser Company on October 1. Douglas will headquarter in Tacoma, Wash., but will maintain his present office in St. Paul. His appointment is a step to establish a closer relationship among marketing, manufacturing, product development and research.

BOISE CASCADE NAMES NEW DIRECTORS . . . Hall Templeton, president of Valsetz Lumber Co. and president and director of the Herbert A. Templeton Lumber Co., and James E. Bryson, executive vice-president of Valsetz Lumber Co., all of Portland, Ore., have been elected to the board of directors of Boise Cascade Corp. Boise Cascade Corp. and the Valsetz-Templeton companies merged in July.

G-P TELLS PROMOTIONS . . . Jens Jorgensen has been named manager of west coast plywood operations and Milton B. Luton manager of the Springfield, Ore., sawmill division in addition to the Toledo, Ore., sawmill division, Georgia-Pacific Corp. reports. Jorgensen assumes production responsibility for seven plywood plants in Washington, Oregon and California.

HAMAR JOINS HORNER FLOORING CO. . . . John C. Hamar, son and grandson of veteran lumbermen in the hardwood lumber industry, has joined Horner Flooring Co. as general manager. Hamar was most recently superintendent at Chassell Box & Crate Co., Chassell, Mich.

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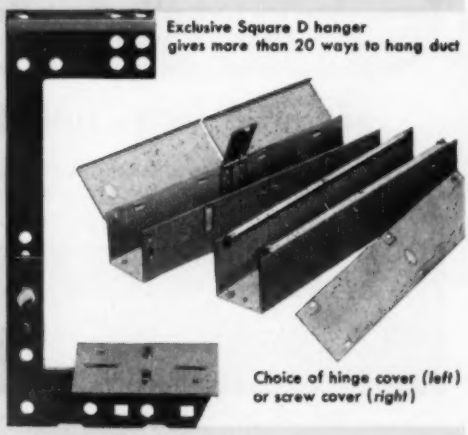

Exclusive Square D hanger gives more than 20 ways to hang duct

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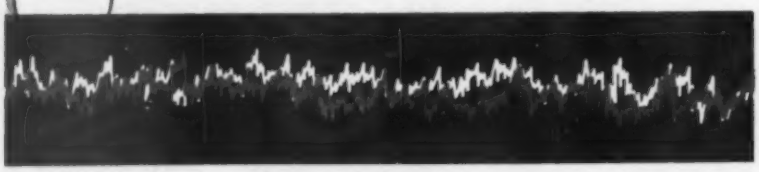
The line that guarantees

uniform adhesive qualities

inch after inch—roll after roll



Accu Ray chart on which continuous electronic measurement of glue application to API Veneer Tape is recorded.

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Industry Meetings

OCTOBER

National Hardwood Lumber Association, October 6-8, Queen Elizabeth Hotel, Montreal, Canada.

Canadian Institute of Forestry, October 6-9, Prince George, B. C., Canada.

Hardwood Plywood Institute, fall meeting, October 7-9, Peabody Hotel, Memphis, Tenn.

Forest Products Research Society, Northern California section, October 9, Santa Rosa, Calif.

Forest Products Research Society, Mid-south section, October 11-13, Beaumont, Texas.

Yale University Industrial Forestry Seminar, October 12-23, Longview, Wash.

National Safety Congress, October 19-23, Conrad Hilton Hotel, Chicago, Ill.

50th Anniversary, University of Idaho, October 22-24, Moscow, Ida.

NOVEMBER

Hardwood Association, fall meeting, November 5-6, Chicago, Ill.

National Wood Council, November 9, Statler Hotel, Washington, D. C.

National Lumber Manufacturers Association, annual meeting, November 9-12, Statler Hotel, Washington, D. C.

Pacific Logging Congress, November 11-15, Civic Auditorium, Seattle, Wash.

Forest Genetics Meeting, November 13-14, Institute of Forest Genetics, Placerville, Calif., joint session of Western Forest Genetics Association and Society of American Foresters committee on genetics.

American Forest Products Industries, annual meeting, November 13-16, LaSalle Hotel, Chicago, Ill.

Society of American Foresters, annual meeting, November 15-18, Sheraton-Palace Hotel, San Francisco, Calif.

Southern Sash & Door Jobbers Association, winter meeting, November 16-18, Shamrock Hotel, Houston, Texas.

DECEMBER

Red Cedar Shingle Bureau, December 4, Olympic Hotel, Seattle, Wash.

National Oak Flooring Manufacturers Association, annual membership, December 9-10, Hotel Peabody, Memphis, Tenn.

Western Forestry & Conservation Association, December 9-11, Spokane, Wash.

1960

JANUARY

Appalachian Hardwood Manufacturers Association, annual meeting, January 13-15, Netherland Hilton Hotel, Cincinnati, Ohio.

FEBRUARY

Northern Hemlock & Hardwood Manufacturers Association, annual meeting, February 23-24, Northland Hotel, Green Bay, Wis.

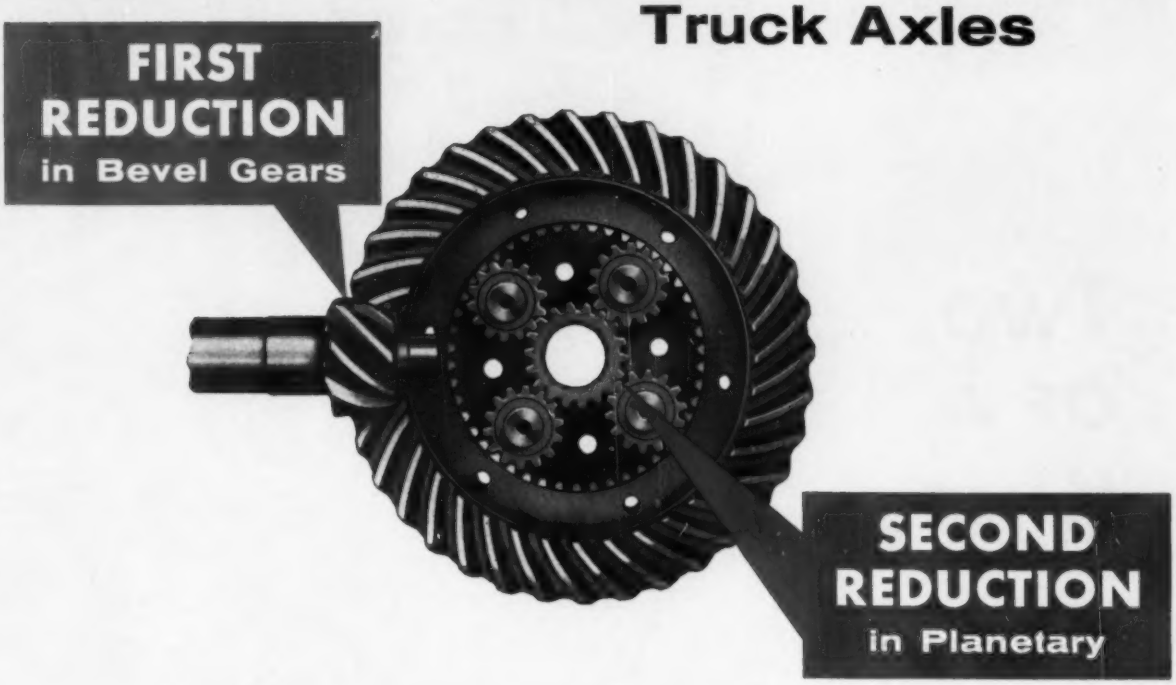
MARCH

Hardwood Dimension Manufacturers Association, annual meeting, March 2-4, St. Charles Hotel, New Orleans, La.

Southern Forestry Conference, March 10-11, Robert Meyer Hotel, Jacksonville, Fla.

West Coast Lumbermen's Association, annual meeting, March 24-25, Portland, Ore.

A New Concept in Double Reduction Truck Axles



Eaton Planetary Double Reduction

Gives You these Important Benefits!

Save Weight—Size for size, Eaton PDR Axles weigh less than conventional herringbone or spur gear axles, permit truckers to haul more legal payload.

Last Longer—In Eaton PDR Axles, gear tooth loads are equally distributed over four rugged "planet" gears; stress and wear are reduced, resulting in materially longer axle life. Eaton's forced-flow lubricating system provides positive lubrication to all moving parts, even at slowest vehicle speeds—a feature not available in other double reduction axles.

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Previously, double-reduction axles have been available only in the extra heavy-duty sizes. Eaton PDR Axles are available in a wide range of sizes—the last word in equipment to meet the demands of today's hauling conditions. By actual comparison they cost less to buy, less to maintain. They have established outstanding performance records in all types of heavy-duty operation.

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AXLE DIVISION
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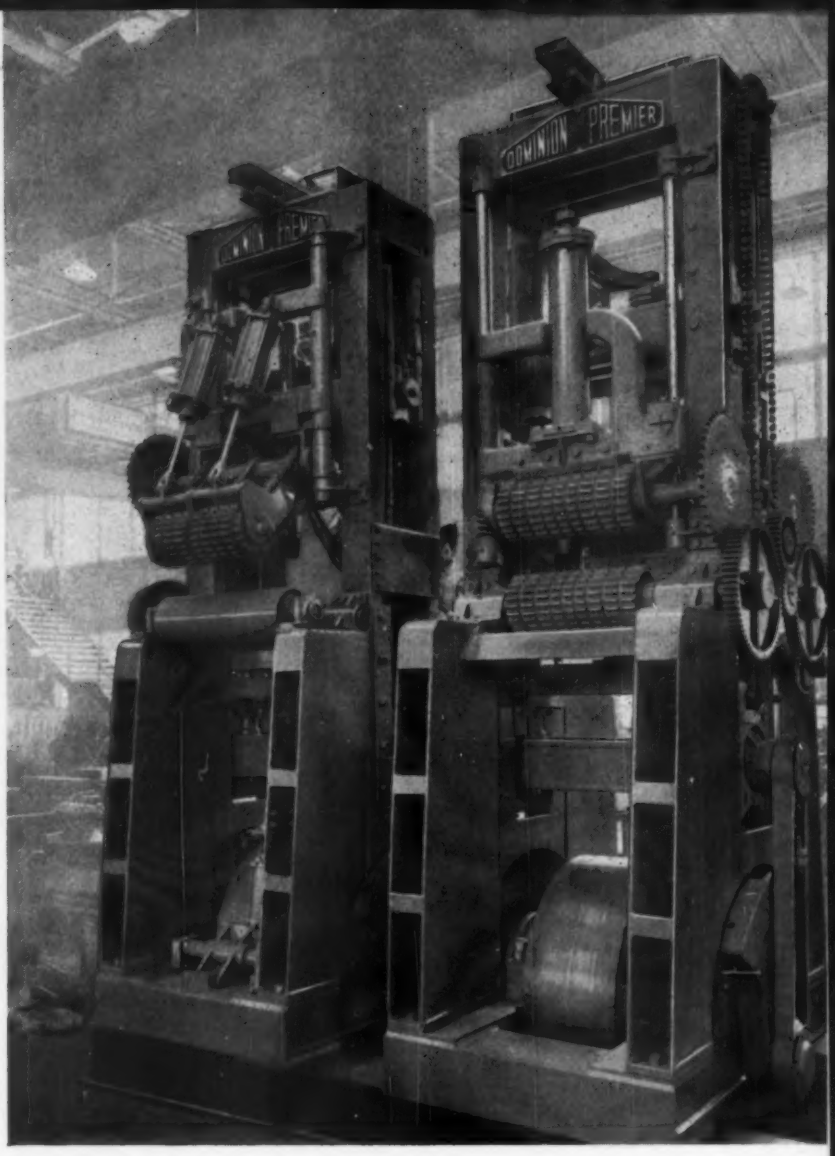
Production
Lower
Operating Costs



Either of these gangsaws will give you *increased production*—in some cases as much as 60%. You can *lower your costs* by specifying the Dominion 25" Premier gangsaw best suited to your requirements.

FOR SMALL LOGS AND CANTS (12" diameter or less) the Dominion Premier gangsaw, with split top feed rolls and extra in-and-out feed rollers, cuts two logs or up to four cants at one time. Overhang of top feed rolls makes it possible to cut short logs without usual bounce. Existing single roll machine can be converted to split rolls in a few hours.

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Dominion Premier Gangsaws are made in Canada to withstand North American conditions. Simple design with built in oscillating feature—no complicated adjustments. U.S. Standard dimensions throughout. All steel construction—no cast iron. Immediate service and availability of parts.

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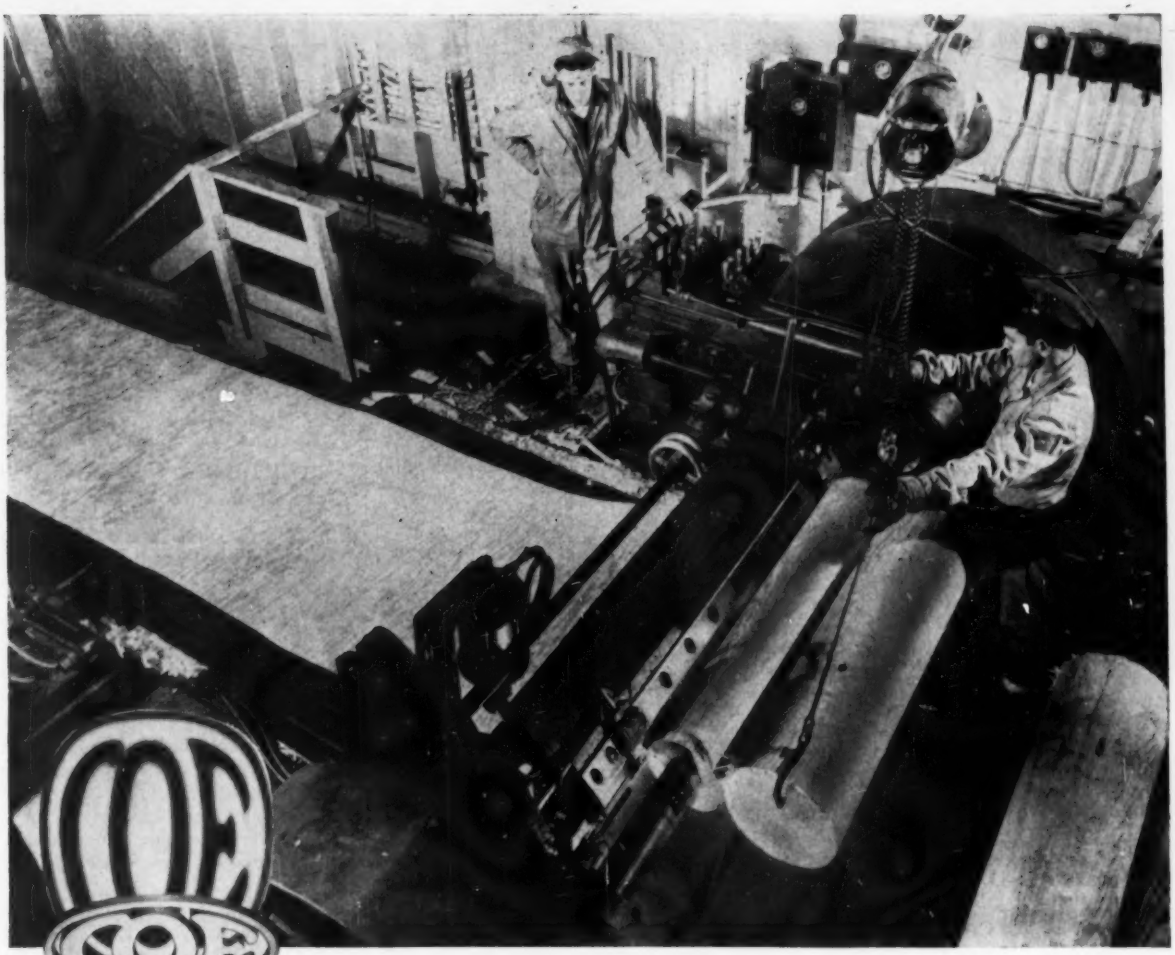
Representatives: Oregon, Northern California and Nevada, FRED E. BARNETT COMPANY; Idaho and Montana, INDUSTRIAL SUPPLY COMPANY, Kalispell, Montana; Washington, MILL EQUIPMENT INC., Seattle, Wash.; Colorado, Arizona and New Mexico, ROBERT S. BADER, 142 Broadway, Denver 3, Colorado; Oregon, L & M EQUIPMENT COMPANY, Portland, Ore.



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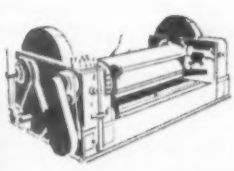
The remarkable performance in both instances has resulted from exhaustive, specialized research extending back through many years.

As pioneer developers of rotary veneer lathes the Coe Mfg. Co. has established a unique record for originating many valuable features that now contribute to high efficiency and unsurpassed operation.

Today, there are Coe Lathes in a full range of models to efficiently "cut" logs of all kinds and sizes. Included is one fast and efficient for bringing extra profit from cores formerly discarded or used as fuel.

THE COE MFG. CO.



Painesville, Ohio

VENEER MACHINERY *Since 1852*

Get the Right Kiln Type for the Job

Fitting the dry kiln installation to the plant's needs is very important in lumber seasoning economics. The well engineered drying plant is most likely to produce good results. Here, Edwin Knight, dry kiln specialist of the Western Pine Association, tells the main points of this phase of an operation.

What should lumber producers expect in the purchase of lumber dry kilns?

This is a puzzling question to many because of the many kinds and types of kilns offered. Kilns vary a great deal in price range because there are so many variations in the requirements. Cost is not the most important factor. More important is the need for dry kilns engineered to the job. A kiln designed for one plant may be completely out of place for another. Size is important, but bigness can be a shortcoming if lumber segregations do not accumulate rapidly enough to fill the large kiln promptly.

Upper grades are the first consideration with most plants. Superior results found with the seasoning of these items is often extended to other grades after the effectiveness on the upper grades is proven. That is why so many mills are adding to their present batteries of dry kilns.

Past practice has been to air dry most of the common grades. But good air drying yards are expensive to build and to maintain. Furthermore, good quality kiln drying has been a large factor in the success of the common paneling grades because they are largely put to interior use. Many mills kiln dry all of the common grades as well as the shop and selects.

Dimension grades are kiln dried by many of the mills that ship this item east by rail. There is some air drying here, but degrade control is difficult. This favors the use of dry kilns. Mills that ship by boat or truck usually ship the dimension green. Although this practice has been the subject of much controversy, the shipment of green western dimension is likely to continue as long as the customer demands it.

Some mills are located in regions in which log sizes and types yield lumber grades that are largely common types. The practice of sorting logs to limit the species cut at one time may help to make the large sized kiln more practical for this type of operation because of the more rapid accumulation of lumber of one sort than is normal to the average mill. Few mills, however, can take advantage of the economies obtained by the lower priced multiple track kiln. Most mills cut too many sorts and some of these are slow in accumulating. Unless the large sized kiln is properly engineered, there will be the added difficulty of variable performance besides the lack of matching to production needs. These facts should be taken into account when purchasing lumber dry kilns.

Mills cutting studding have very special problems of their own. They need to "wring some of the water out of the wood" to reduce shipping costs. There are also benefits of the increased selling price for kiln dried dimension and the fact that it does not fluctuate in price as does the green.

Air drying of dimension is often difficult, at best. Mills that cut several species may sell green Douglas fir, but few sell green white fir or hemlock. For these various reasons, more and more of the dimension grades are being kiln dried each year.

Some mills kiln dry all of their light framing material, 2x4 through 2x12, in conventional kilns built for all purpose needs. Other things being equal, this type of kiln should do the best job. However, mills that specialize in studding and dimension should consider the special stud drier. First cost will be less and the results should be adequate, if the unit is properly engineered.

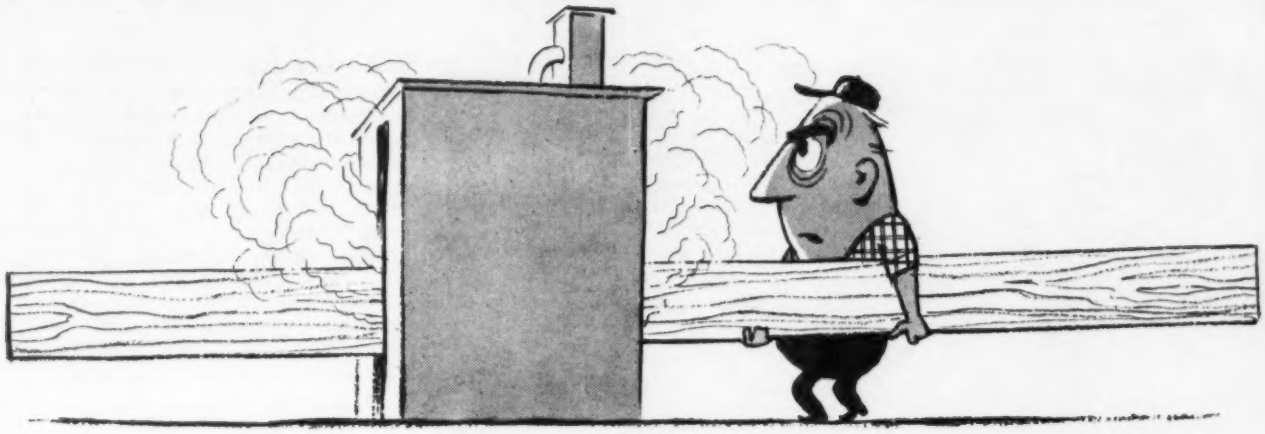
Mixtures of different drying rate are troublesome but this is partly a problem of proper segregation that should be considered in all kiln drying practices. It is not very practical to hold up the drying for a portion of a charge whether it be in a progressive type or conventional batch type. One drawback of the special kiln designed for one particular job is the temptation to use it for a purpose for which it is not intended. The kiln purchaser should be fully aware of a drying unit's characteristics when the purchase is made. Consider whether it fits into future market demands. The specialty unit should be considered only for its place.

What should the mill look for in an all purpose unit designed to kiln dry all species and segregations? Certain main features will be similar in kilns designed to handle the upper grade segregations, including commons and paneling, regardless of region. Uniformity of temperature control is very important. So is uniformity of air circulation. Control of relative humidity is particularly critical with certain species, but is important to accurate drying in all cases.

A dry kiln for these upper grades will need some provision for reconditioning the lumber to relieve casehardening. Be sure that the equipment provided is adequate. An undersized, low capacity reconditioning unit is a waste of time and money, because time is money when it is spent unnecessarily. Any type of lumber that is to be resawn or to be similarly remanufactured should be properly reconditioned.

The building should be tight, well insulated and designed to have a reasonable life expectancy without excessive maintenance costs. When a kiln is built in certain districts, building codes must be met. These restrictions should be investigated before the building is erected. There are conditions to be met, in order to qualify for certain fire insurance merits. Considerable savings will result, in the long run, if these are observed. Check with your insurance company.

The size of the kilns in the battery as a whole should be engineered so that the kiln will be kept operating with minimum of delay. It is not too important that the choice be single or double track as long as the size is right for the need. In fact, short doubles are often chosen because of their lower initial cost per thousand feet of holding capacity.



The size and shape of the area in which they are to be located may determine this point. The single track unit is a popular choice in spite of their higher first cost because of the increased flexibility that can usually be achieved. Certain other features make the single track kiln desirable in spite of the greater initial cost for the size. Temperature is more uniform from side to side of the cribs of lumber. Also, final conditioning is more rapid and efficient.

The purchase of used equipment should be considered when the proper type is available. It will often fit the needs of the operation just as well as new machinery. Of course, overhauling of some parts may be needed, but if properly engineered and the price is right this will be one way to get first class equipment for the cost of a lower class kiln.

There are basic differences in dry kilns built strictly for each of the pine, fir and redwood regions. Where fast drying, high moisture content pine is to be dried, the amount of radiation built into a kiln is relatively large. It may be much less for slower drying types such as Douglas fir and redwood. The drop in temperature across the loads of ponderosa pine, for instance, has been shown to be as much as 22 degrees F. or more when crib widths 9 feet wide are charged with 4/4 sap lumber. This becomes less and less as the drying progresses.

This means that a dry kiln to be successful with this type of item must have provision for a large heating capacity at the start, but with adequate provision for reduction in the amount of heat supplied as the drying progresses. This is handled with pressure reducers or coil division, or both, in the case of steam heated kilns. Direct fired kilns meet this need by throttling controls or similar devices. The main point in question is the fact that each region should have kilns designed specifically for the need. Costs can be excessive when this principle is violated.

What are some of the savings to be made without sacrificing necessary performance? Consider the purchase of the necessary kilns at one time. There are usually several economies to be achieved by this procedure.

• Heating equipment, steam lines, grading, drainage and material costs are saved by quantity purchases.

• Consider the life expectancy of the operation. If it is of moderate length, wood is a good choice for the kiln buildings. Most lumber mills can supply the necessary materials. Their construction crews are familiar with this material. Wood has excellent insulating qualities, especially when used in the wall thicknesses required in most fire insurance policies. Make use of the short double track kiln if price is important. As has been previously mentioned, these units are lower in cost than the long single of comparable capacity.

• If the kilns cannot all be built at once when the sawmill is constructed, it is desirable to engineer for them then so that inadequacies do not result. Costs are less in the long run when the entire battery is considered in the original plan.

• If space for tracks is at a premium, consider the lift truck side loading kiln. Their lower first cost will be dissipated by higher loading costs and by the delay in production caused by the loading process. Lift truck crews must be called at night with the side loader if delays are to be avoided. The kiln operator can do this job alone at any time with a properly designed track type set-up. This is an important point.

• Consider the use of the lift truck unit package loaded track type kilns for the small to medium sized operation. Although it is true that piling quality is generally better where lumber is stacked in full cribs rather than in units, the flexibility of the unit package method can be fitted to the small plant very well. It permits unit loads to be transferred by lift truck from stacking area to the yard or to the kiln, whichever is best. Loads can be moved from yard to kiln or back again without repiling.

The lumber may remain on the stickers without rehandling until it reaches the planer break-down hoist. Some measure of sorting for seasoning needs is possible by drying packages of grades sorted to certain widths. There are shortcomings, to be sure, but many operations are making full use of the method with a minimum of degrade. It is all a matter of proper supervision. The unit method cannot be expected to be successful unless care is taken to provide smooth runways for handling the loads. Degrade can be severe when carelessness creeps into the handling of lumber in unit package size. When this occurs, the inherent savings of the method quickly disappear. This should be kept in mind.

• In the purchase of kilns the large operation can make savings that are not warranted for the small plant. By virtue of having operators on duty night and day, they can, for example, omit certain types of controls such as automatic reversal of air circulation. A substantial degree of automation is required for kilns that operate part of the time without attendants.

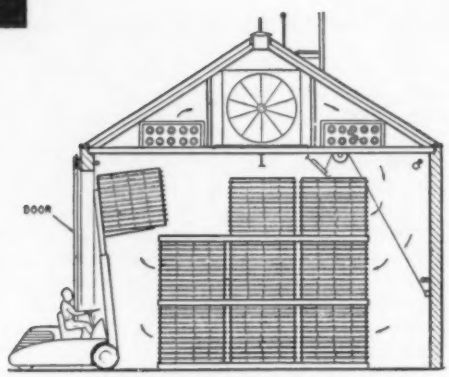
• The small operation needs competent engineering fully as much as the large one to set up the overall plan for a seasoning operation. It is suggested that before purchasing dry kilns, plans be fully complete. Bids from all of the kiln companies who supply equipment of suitable design should be secured. Be sure to give them all of the facts about the species produced, the amounts of each, the method of segregation planned and other pertinent information. Carefully thought out planning will pay in the long run.

Mills that belong to a lumber association should make use of the services of their engineering staff in this regard. The kiln companies will also go to considerable effort to cooperate with the mills as a necessary part of their service.

Space restrictions at this stud mill were such that three side-loading kilns—each 42 feet lang by 30 feet wide—together with the housing for an automatically operated low pressure boiler, were installed in a line along a steep hillside. With these three relatively small kilns, Round Prairie Lumber Company, Dillard, Ore., is now drying over 1,250,000 board feet per month of Douglas Fir, Hemlock, Western Red Cedar and Port Orford Cedar studs.

Principal Types of Kilns For Drying Lumber Products

By LLOYD EVANS, Secretary-Treasurer, Moore Dry Kiln Co.



SIDE-LOADING type of dry kiln.

Kiln design and actual operation are, of course, always dependent upon the behavior of the lumber being seasoned. As a result, several types of kiln designs—single track, double track, multiple track and side-loading type—have been developed to accommodate the wide variety of seasoning requirements of the forest products industry.

Keeping in mind that the main factor to consider in the installation of any lumber kiln is the particular drying requirement of the mill, "flexibility" and "adaptability" are two of the most important words in a kiln engineer's vocabulary. Most mills season several species of lumber and many times one kiln must be able to accommodate all the seasoning required by the mill. Typical designs offered mills today are shown here. The physical layout of the mill is also important as the amount of available space will certainly determine, to a degree, the kiln design most feasible for the mill concerned.

Side-loading type. Especially suitable for plants and mills where space is at a premium, is the trackless side-loading kiln for handling unit packages of lumber. Dry kiln truck or transfer tracks are not required for this type of drying facility which can be installed along a steep hillside, between buildings or in other areas to utilize every inch of available space.

In the side-loading kiln, a lift truck stacks one unit package on top of another in the kiln to a height of three or more units. After drying is completed, the lumber may be removed in reverse fashion. The above drawing, showing the side-loading type kiln, clearly illustrates the compact advantages of this design.

The first side-loading type kilns were installed in wooden kiln buildings in 1938 at the Setzer Lumber Co. plant in Greenville, Calif. (now Meadow Valley Lumber Co.), and are still in operation. Since that time many operations of this kiln design have been made in the United States and Canada.

One advantage found with this type of kiln is reduced handling costs. This applies particularly where plants partially air dry lumber before placing it in the kiln for final uniform seasoning. In these cases, lumber need only be stacked in the yard. From there the packages can be moved directly to the kilns, with a definite saving in labor. Its adaptability to any drying requirement is another advantage of the side-loading kiln.

Where there is a definite limitation of space, side-loading type kilns are by far the most practical to install.

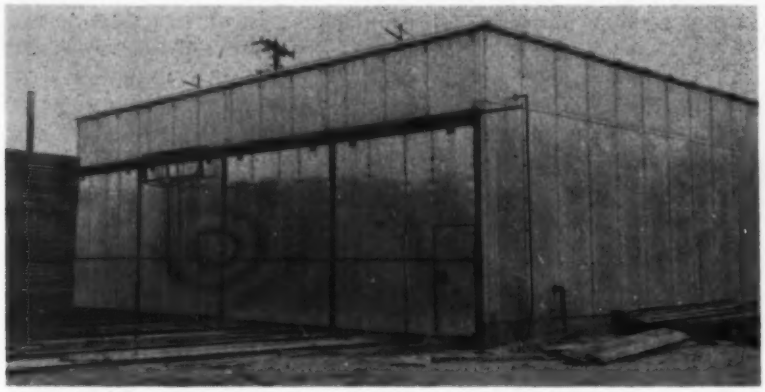
Direct heat kiln. Another type of kiln causing interest among lumber and woodworking plants, furniture and door factories and planing mills without high or low pressure steam boilers is the direct heat gas or oil-fired kiln. It entirely eliminates boilers and is especially popular in areas where natural gas is plentiful or where there is a possibility of securing natural gas at a reasonable rate.

One of the first direct heat kilns to make an appearance in the West is a gas-fired kiln at Valley Lumber Co., Artesia, N. M. Designed especially for seasoning Douglas fir and other species, the kiln measures 30 feet in width by 66 feet in length. A special feature of this installation is the 2.75 million B.T.U. capacity gas burner equipment which operates automatically.

Valley Lumber Co. housed its kiln in a completely fire-resistant building of masonry walls, insulated transite-zonolite roof and sheet metal and concrete control room. It is double-ended and loads can be charged into the kiln at one end and removed from the other.

Over 300 U. S. patents have been granted for kilns for drying lumber, the first patent being taken out at about the end of the Civil War. From the "Arkansas Smoke Kilns," the original predecessor of the modern kiln, seasoning equipment and methods have progressed in leaps and bounds. New improvements are undergoing continuous testing.

The invention of the steam kiln, the later introduction of live steam sprays to supply humidity and the many other marked improvements—fin pipe radiation, self-acting automatic ventilators for exhausting moisture from the kiln, fireproof doors, fans for providing fast uniform air circulation, variable speed air circulation to reduce electrical power requirements as the lumber is dried and accurate automatic temperature and humidity controlling and recording instruments—all of these and other developments have caused wide acceptance of seasoning equipment.



PREFABRICATED dry kilns are another of the newer developments in seasoning.

Prefabricated kiln. Another development in kiln construction is the metal panel prefabricated kiln building; but prefabricated kiln buildings, as such, are not new. Even as early as 1922 a portable kiln using prefabricated wood panels was sold to a mill in Georgia. A portable kiln using prefabricated steel frame panels was installed in a Florida sawmill in 1925 and in 1942 a prefabricated kiln building was erected for a plant in Illinois using steel frame panels with aluminum sheets on both the inside and outside wall surface—with insulation in between.

It has not been until recently, however, that such a wide acceptance, particularly in the south and east, of the prefabricated type kiln building has been experienced.

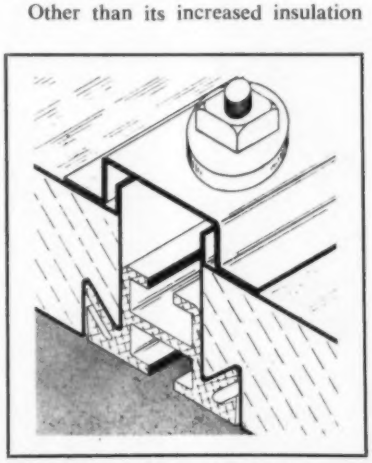
As the word "prefabricated" implies, the structural steel work and metal siding is factory produced and assembled on the job site when it arrives at the mill. Due to the composition of wall and roof panels, the insulation value surpasses that of common brick and masonry construction.

As an added precaution against loss of steam and to better maintain its superior insulation, wrap-around type building corners are used in prefabricated kiln buildings. This eliminates corner building joints where leaks often occur. No bolts pass through the insulated panels at any point and the insulated roof panels need no additional covering. Little or no maintenance such as painting, plastering, etc., is necessary.

Prefabricated kiln buildings are completely flexible and can be furnished in various models or types. They can be custom built to accommodate any particular seasoning program.

Better insulation, portability and fast installation at minimum cost are ample reasons for the interest in this modern type kiln.

Other than its increased insulation properties, the chief advantage of the prefabricated kiln building is its portability and fast erection. One of the erection advantages is a newly developed panel joint design called the "wedge-seal" panel joint. It is actually wedge-shaped and when the joint is assembled and tightened up, it seals itself and prevents air and vapor leakage from the drying compartment.



WEDGE SEAL PANEL JOINT allows quick assembly of prefab kiln, prevents leakage.

This panel design is such that the inside sheet is formed and extended to the outside of the panel where it then meets and joins the outside sheet of the panel, thus eliminating entirely any inside joint on the panel which could be exposed to high temperatures and humidities found inside the kiln.

Tunnel-type dryers. Dryers of the recirculating or wind tunnel type have been manufactured for many years. In the south they were principally used for drying of veneer but in later years the primary function of the recirculating tunnel type dryer has been for dimension lumber and studs where drying to shipping weights of 17 to 19% is required.

The recirculating tunnel type dryer operates on a progressive basis with the loads going from the green end to the dry end of the tunnel. Air is blown by fans located at the end of the tunnel and passes through the entire length of the lumber loads. At the green end of the tunnel part of the air is recirculated back through the fan and a certain amount is exhausted.

Temperature is controlled only at the dry end. A dryer of this type lends itself to handling of one type of product only. The heating and air circulation are nominal and therefore the drying times are longer than in conventional cross-circulation fan kilns.

Accurate kiln instruments make modern kilns possible. Advanced design of instruments incorporated in dry kilns today are pressure controllers to regulate steam pressure in the kiln steam supply; time switches which reverse air circulation automatically for more uniform seasoning; air operated motor lever and automatic ventilator controls, "adjusto" vent control, and recording and controlling instruments which "watch" the seasoning process with an uncanny degree of accuracy.

Extracting moisture from lumber is no longer done on a "guess-work" basis. Time tested scientific equipment and methods are within the reach of any mill, regardless of its size or seasoning requirements. Nowadays it's common, rather than exceptional, to see kiln installations throughout the lumber and woodworking industry. In the near future, it will be exceptional to see a mill without dry kilns.

Double-track Moore dry kiln is an integral part of the manufacturing plant. Cooling shed is at left, with boiler room built into kiln in the middle. Kiln is 34x76 feet, 15 feet high. It is possible to get a maximum charge into the kiln each time with studs, since there is no wasted room. It takes 108 packages to make up a charge. A rough unit contains 231 pieces and it is carried through the mill in order to keep the loads full and to simplify handling.

Drying is Important Step in Manufacturing

for small operator who makes kiln pay dividend of salable, quality product

A quality product is the prime consideration at Sun Studs, Inc., Roseburg, Ore., a mill which specializes in the manufacture of kiln-dried studs.

According to Fred Sohn, president and manager, it is not a question of "can we afford dry kilns?" but "how can we afford not to have kilns." His organization has thrived on the philosophy that proper drying of lumber is one of the most important steps in the manufacturing process.

In a physical plant which has an estimated value of around $500,000, dry kiln and allied equipment are so closely interlocked that it is difficult to estimate the cost of the installation devoted to seasoning. However, Mr. Sohn indicates that, in general, the kiln, as such, is usually the smallest part of the overall investment.

Seasoning opens new markets for small mills, according to Mr. Sohn. The green dimension and stud market represents a large outlet for mills in the southern Oregon area where Sun Studs is located. He attributes the acceptance of his company's products to the high quality maintained. Also larger mills often do not produce enough studs to satisfy customers' demands and can fill mixed-car orders of quality kiln-dried lumber of all sizes by buying certain of their needs from the smaller operators such as Sun Studs.

Log sorting is important to proper seasoning. The plant cuts a high percentage of old-growth Douglas fir and a small proportion of hemlock. The hemlock logs are sorted according to specific gravity. They are selected

A useful tool around the kilns is the Allis-Chalmers wheel tractor. At left, kiln superintendent Art Klassan moves a load along which just came out of the kilns. The steel pushing bar, at right, can be removed and placed 90° in another direction to handle loads on the right hand side of the tractor. The blade on the tractor is helping to push load here. It also is used for yard maintenance.

Cooling sheds are important to the success of Sun's kiln drying program. This shed will hold approximately 265,000 board feet of lumber.

by the way they float in the water.

The next sort is on the green chain, where "light" and "heavy" lumber is separated. This lumber is allowed to equalize somewhat during storage in the yard prior to kiln drying. After drying, there is another sort behind the planer. This same procedure is followed for Douglas fir but to a lesser degree, since the fir is mostly old-growth.

The double track kiln is a Moore, and has a capacity of 133,000 board feet per charge. Kiln dried lumber comes out straighter than air-dried stock and the stresses even out better; also the drying defects can be held to a minimum and the lumber stress-treated. Air drying of lumber while it is in the yard preparatory to going into the kiln, reduces the moisture content somewhat. Generally, however, air drying is not considered a very important part of the seasoning program at this mill.

Hemlock drying. The "wet" and "dry" hemlock studs are separated during the sorting operations, prior to drying. The green, heavy hemlock takes six days to dry. Lumber from mixed light and heavy logs requires four days, on an average. Light hemlock will dry in from 2⅔ to 3 days.

The kiln is usually started at 170° F. dry bulb temperature with a 12-14° spread over the wet bulb reading at first, until the fibre saturation point is reached. Then a larger spread is maintained of 18° or even up to 30°.

A final conditioning period on hemlock is carried out to relieve stresses. Three stickers are used on 8′ studs to prevent cupping. A recent charge of heavy sinker stock of hemlock was dried in 54 hours. It had 30 days air drying in the yard before it entered the kiln. The dry bulb was kept at 170°; the wet bulb started at 158° and then dropped to 154°.

Douglas fir drying. The charge is first steamed for six hours to get the temperature up to 160° F. Every six hours the spread between dry and wet bulb is raised approximately 2° until a spread of 30° is achieved.

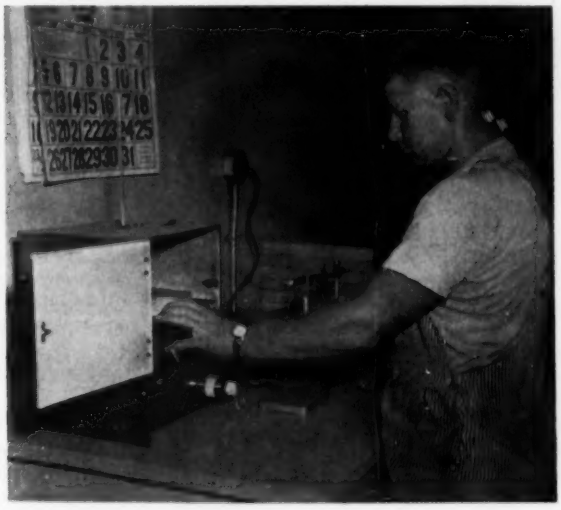
Midway through the drying, the dry bulb reading is raised 2° to 162°. Mr. Sohn discovered that if the temperature is raised much over 160°, the resin in the wood becomes cooked and the knots become loose, thus subjecting the wood to degrading. The last 4 to 5 hours are spent in conditioning. Final drying is to an average of 19% moisture content.

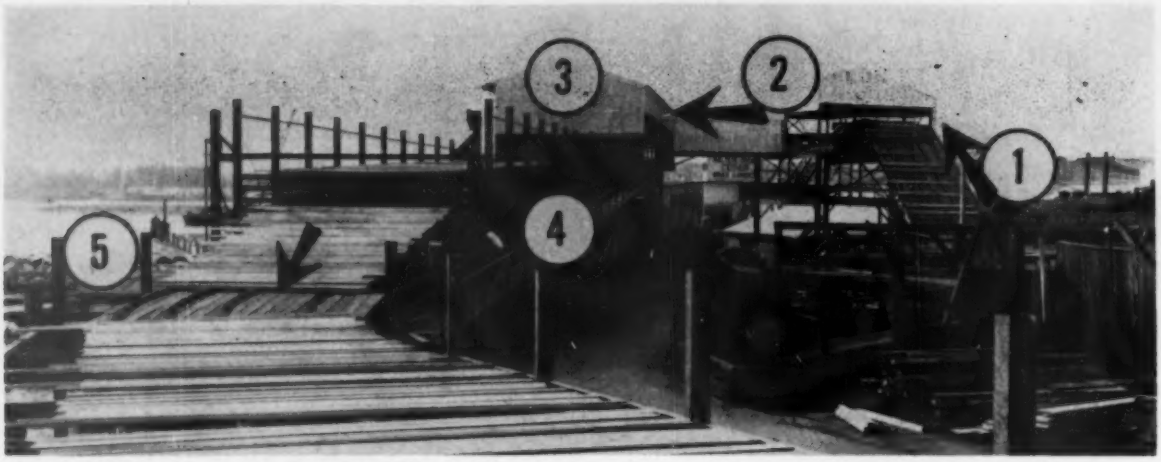
Quality control is an integral phase of kiln operation. The lumber in the kiln is checked regularly and samples are taken. Also, the lumber is checked before it is placed in the kilns and random samples are taken behind the planer for further checking.

To give men a better undestanding of kiln operation, Mr. Sohn sends his kiln personnel to the lumber seasoning courses at the school of forestry, Oregon State College, Corvallis, Ore.

Kiln car stopper is a shop-built adaptation. It is easily put into position on the track, as shown here by Mr. Klassan. It is much simpler to install than the type of stop which fits vertically over the kiln track and is locked from the under side.

Electric drying oven is part of sampling equipment. Midway through drying cycle sample is taken from kiln and checked for moisture content and appearance. Schedule can be changed if test shows it should. A special check is made on drying results against type of log entering mill.





The lumber flow from the green chain is as follows: Boards are side-lifted by chain conveyor (1) to top level, then by belt (2) to first section of chains ahead of sorter. Steps (1) and (2) are necessary to reverse direction of boards 180°. Specially built board positioning device ahead of trays at (3), automatically centers each board to fit uniformly onto gravity rolls of sorter (4). Board is then in proper relationship to other boards in its general length classification when it reaches automatic stacker. A 28° curve at (5) turns boards straight-away on transfer chains leading into stacker.

Automatic Green Lumber Sorter helps reduce lumber handling costs for cedar mill

An efficient combination of modern handling and seasoning practices has been placed in operation at Seattle Cedar Lumber Mfg. Co., Seattle, Wash., through use of an automatic sorter and package stacker.

Following the disastrous fire over a year ago, the mill has added 14 new dry kiln units, an entirely new system of air drying and a large crane shed, all designed to expedite lumber manufacture.

A primary problem in re-building was to overcome the obstacle of limited space. Solution of the problem started with (1) purchase of an adjacent five acres and filling in 100,000 cu. yds. of sand to gain a larger yard and (2) in designing new sorting and seasoning facilities to fit the available space. A decline Setzer-type sorter is linked to an automatic kiln package stacker of the company's own design. New packages are handled by fork lift truck directly from stacker outfeed chains to either the kilns or to the yard for air drying.

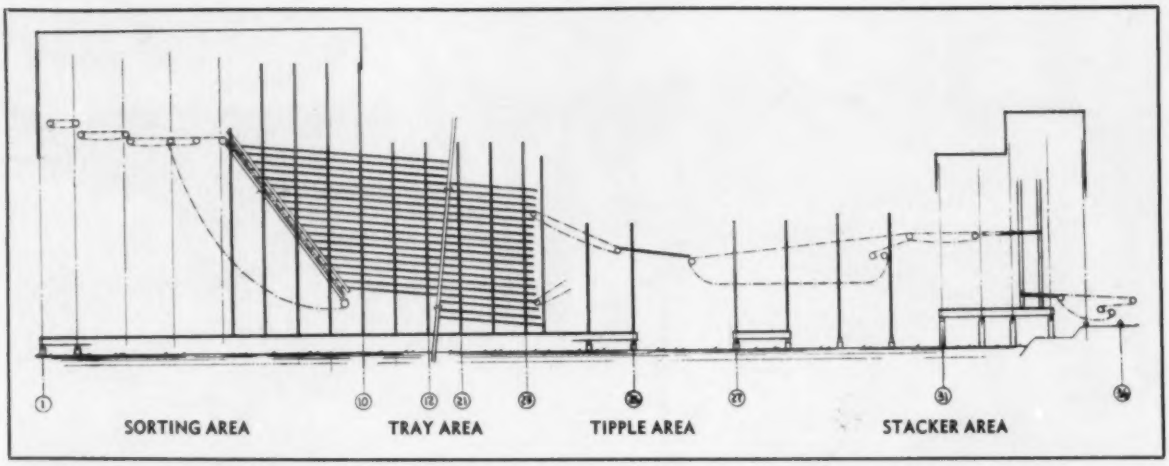
Handling the green lumber in this manner was based upon the fact that drying time could be effectively reduced by sorting for moisture content as well as for thickness and length. Thus the "light" and "medium" boards are separated at the sorter and then stickered and packaged for direct entry to the kilns. "Heavy" boards are removed in similar package form for air drying in the yard.

Following about three months air drying, the "heavy" cedar is ready for the kilns. The more uniform moisture content gained permits kiln seasoning in a shorter time. Major advantage of the moisture separation is more uniformly dried, quality product.

The crane shed is an integral part of the program. The shed contains an automatic unstacker and 150′ dry chain. Storage area will handle 2 million board feet of dry lumber. Lumber is sorted for width on the dry chain. At the end of the chain is a one-man package stacker for bulk items. The overhead crane removes various sorts to storage to await orders from the remanufacturing department.

The $1 million investment in modernization is backed by a solid marketing program. Energetic, young president William Black is already looking for new cedar products to come from research developments.

Sorting control system. As boards pass in front of operator he judges moisture content by feel and appearance, determines if light, medium or heavy. He then selects proper button marked L, M or H on Redco control panel. Selection area is 27″ wide to allow decision time. Board then starts down incline. Redco Magdelay memory system lifts gate to bridge gap, delivering the board to its proper sorting tray.

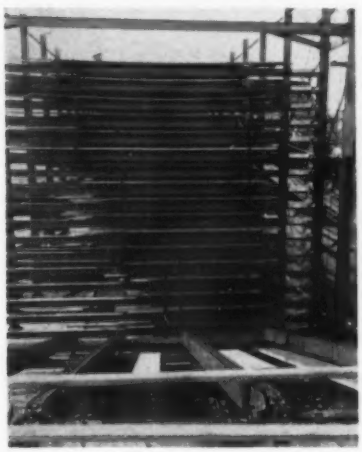


Elevation of automatic lumber sorter and stacker at the Seattle Cedar Lumber Mfg. Co. The numbers in the circles should be multiplied by 10 to give the proper distance in feet from the extreme left. Drawing, courtesy of engineers Tracey, Cook, Brunstrom & Dudley, Seattle, Wash., who handled the sorting system and other installations. Heart of the memory control on the sorter and stacker is a Redco Magdelay system. The sorting system was especially designed to reduce lumber handling costs. The sorter is linked directly to the automatic kiln package stacker.

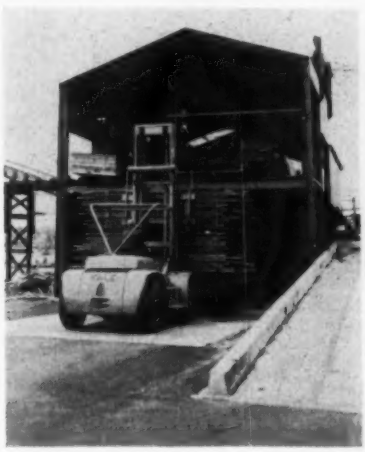
Seattle Cedar Lumber Mfg. Co. is one of the larger and better known milling firms in the Puget Sound region of Washington. Production is high-grade cedar. Majority of cut is 5/4″x10′ and other widths, clears for remanufacture into bevel siding. Per shift cut is 135,000 bd. ft. of which 120,000 ft. is kiln dried. Plant has 10′ band headrig, 8′ pony rig and 48″ gangsaw. Firm also has 15 shingle and one shake machine.

Consultants in planning plant reconstruction included Ed Vohs on structural problems; Tracey, Cook, Brunstrom & Dudley, consulting structural and mechanical engineers who handled sorting systems and other jobs; and Byrne Manson who helped on seasoning methods and yard layout system.

More on SEATTLE CEDAR next page

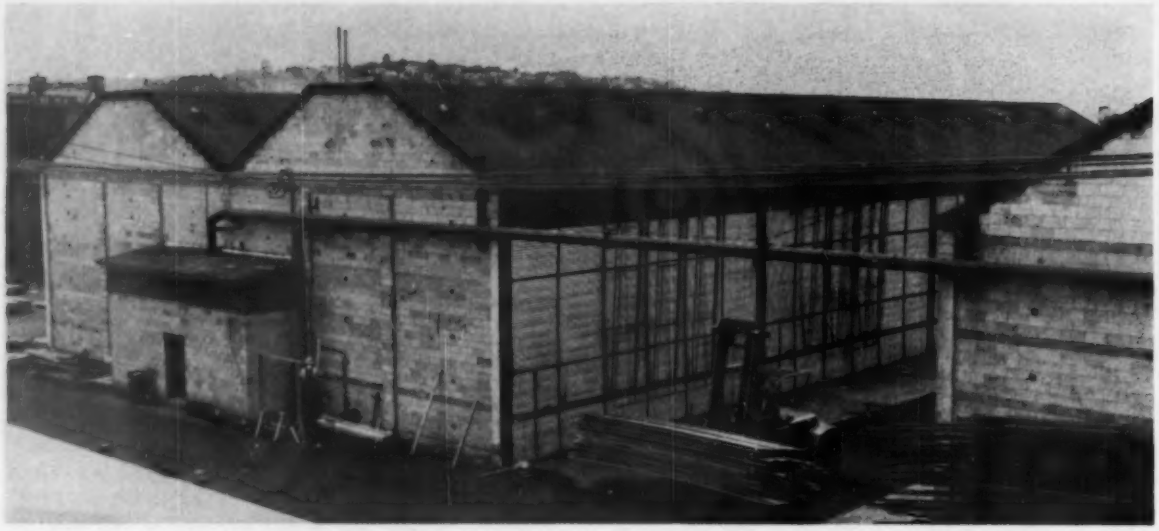


Tipple end of sorter shows the 19 trays. Sorts are for length, 16-21′, 12-16′ and 8-12′; for thickness 4/4 or 5/4, for moisture content, "light," "medium" or "heavy." The bottom tray is for random lengths. Moore Dry Kiln supplied tipple and decline sections. To empty tray, operator pushes button to move tipple to proper level. Light shows if safe to proceed. Second button unlocks tray gate.



Fork lift handles two packages of cedar boards from stacker outfeed chains. Load will go directly to kilns if it is "light" or "medium"; if "heavy" cedar, it goes to air drying yard for three months prior to kiln drying. Fork lifts such as this heavy-duty Yale & Towne unit save time and money in handling, provide higher production per man. Green lumber is stacked only once before it is ready for kilns.

Automatic stacking is accomplished with unit built by plant engineers and designed by Harvey Miller, veteran employee. It can turn out a 2000 bd. ft. stack on average of every five or six minutes. Each tray of the sorter has approximate capacity of 1-1/5 packages. Package size is 6′ wide by 42″ high. Two packages are stacked with a 4x4 over each sticker line between packages.



The new dry kilns consist of one bank of eight (four on a side) and another bank of six (three on a side), or a total of 14 units or compartments in all. The units are identical in size and all are side-loaded by fork lift truck. Each unit holds approximately 70,000 board feet. The doors are constructed of two outer aluminum skins with a Fiberglas core.

14 New Kiln Units Integrated Into Seattle Cedar Operation

Mill and kiln operations are closely allied in the Seattle Cedar Lumber Manufacturing Co.'s re-building program. Prior to ordering the new dry kilns, the management gave careful attention to sawmill output, sorter and stacker capacities and the capabilities of a new air-drying yard.

The result was a turn-key for Medford Machinery Co., Portland, Ore., builders of Fryer dry kilns. This supplier performed all the general construction work in addition to installing all kiln equipment and controls.

The special features of these kilns are:

- Aircraft-type aluminum propellers for air circulation.
- Direct-drive electric motors on the propellers, eliminating need for shafts.
- Non-recording thermocouple automatic temperature controls.

The accuracy of the thermocouple indicators is estimated to be within 2° over or 4° under the actual temperatures in the kiln.

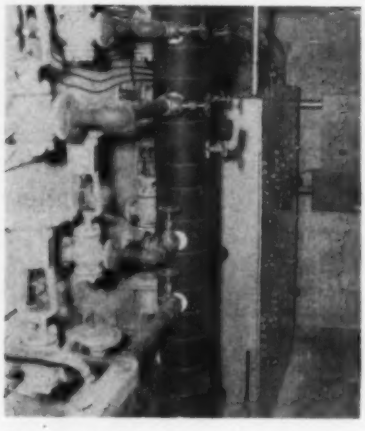
A special control panel (pictured here) contains the switchgear and timers for each of the propeller direct-drive electric motors. The motors automatically reverse every four hours. There are three fans per unit, placed cross-ways in the gables of the kiln building roof. The air flow is considered to be relatively high velocity, giving an average leaving air velocity of 450 fpm.

Two fork lifts can empty and load each kiln in about two hours.

The overhead baffles in the kilns are Weyco hardboard in steel frames with aluminum paint. The side baffles are ⅜" plywood 20' high. The vents are automatically operated. A tar-type kiln paint is used on the inside walls.

Wet and dry bulb temperatures are pre-set on the control panel of the Fryer dry kilns. Since cedar drying requires such a long period of time, the non-recording type instruments were installed; the job of controls was handled by Minneapolis-Honeywell. Dry kiln operator Dave Liming makes daily entries on his log cards. Steam alves are operated by air ith mechanical linkage between the controls and pre-set temperature dials.

Principal equipment: Fryer kilns by Medford Machinery Co.; General Electric direct-drive motors, controls and valves by Minneapolis-Honeywell.



Steam standpipe from the mill supply is the major header to the heating coils and the steam spray in the kilns. All steam control is by diaphragm valves. Thermocouple lines are heat and acid resistant. Steam coils are of finned copper; each unit 960' of such coils. Switchgear at right contains the automatic controls for the propeller fan motors. Impulses are sent via microcable, which is sealed inside copper tubes.

Kilns Are Key to Quality Control

Southern mill dries 100% of production

When Clay Foreman was building his first sawmill nearly 70 years ago at Elisabeth City, N. C., his neighbors tried to discourage him, pointing out that most of the timber in that area had already been cut out and he would soon be left with a mill and no lumber.

Today, on the same site, L. R. Foreman & Sons Lumber Co., is cutting an average of 12,000 board feet per hour from logs that are considered equal to any Southern Pine timber cut along the eastern seaboard.

The Foreman family has built up an enviable record over three generations for the manufacture of fine Southern Pine lumber through a quality control program.

The Quality Control program starts in the woods and carries on through from the time logs are cut on the company's own 30,000 acre tree farm, until the seasoned lumber is delivered to the market in a fleet of Foreman-owned and operated trucks. Foreman kiln dries its entire output and believes that the extra cost of handling deliveries with its own trucks is more than offset by keeping the lumber clean and controlling its appearance from mill to customer.

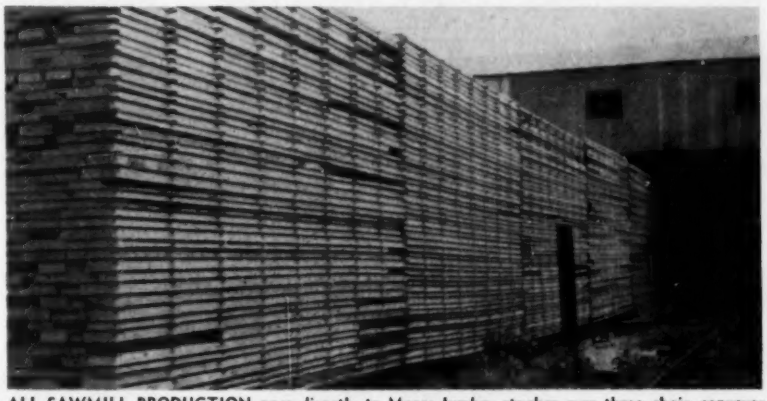
Four double-track Moore cross-circulating kilns bring the moisture content of the lumber down uniformly to 8-12% for the 4/4 and 5/4 and to 12-15% for the 8/4 on a 72-hour schedule. The kilns are equipped with Moore Master Recorder-Controllers, which automatically control drying elements at both the loading and unloading ends of each kiln. They also control the roof ventilation. The kiln operator gets a permanent chart record of the schedule carried for each kiln charge.

A new double-track Moore kiln will be in operation shortly, giving the mill a total seasoning capacity of 800,000 board feet per week.

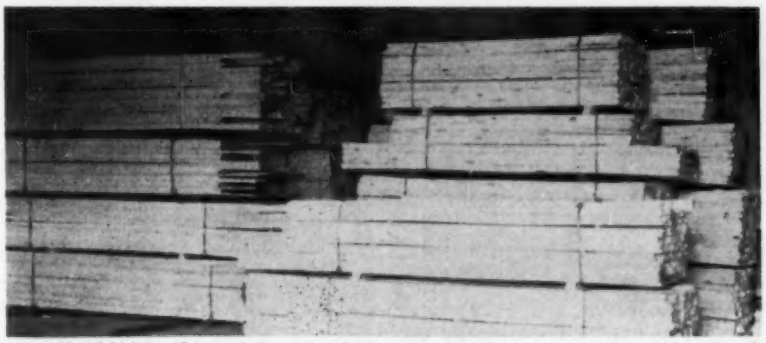
Now under construction is a new automatic lumber sorter, which will take boards from the unstacker and make 81 separations at the rate of 20,000 board feet per hour, with eight men.

LOGS ARE UNLOADED in storage yard by 25-ton LeTourneau Log Stacker. All logs are spread out on a deck so the scaler can inspect each log and measure it accurately. During the summer logs are rotated every two weeks to prevent stain. Logs can be dumped at the mill.

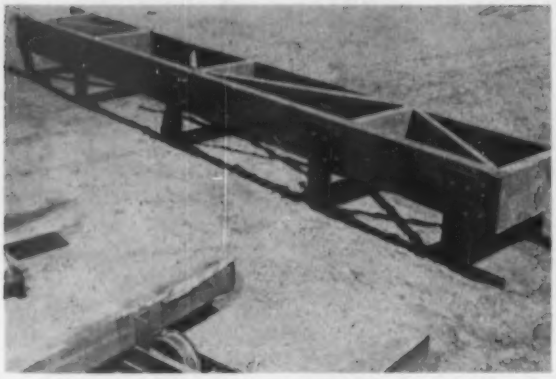
COMPANY-BUILT DEBARKER barks all logs. Log grades determine which of two 8-foot band saws will handle logs; better grades go to right hand band which cuts dimension, framing and upper grades of boards, the balance go to left hand band served from a common deck.



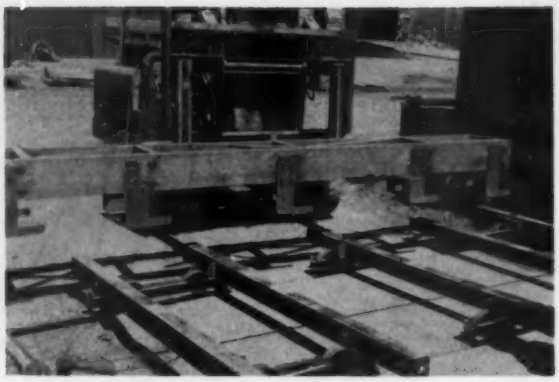
ALL SAWMILL PRODUCTION goes directly to Moore lumber stacker over three-chain conveyor which turns boards 90 degrees before they reach the stacker. Kiln loads are stacked 6½ feet wide and moved to kiln loading area. Narrower loads assure more uniform drying.



LUMBER COOLS for 48 hours before it is taken to unstacker. Boards are sorted to width and grade and to length in 8/4 stock. Lumber is kept under cover in rough dry shed until ordered. It is then dressed and graded according to SPIB rules and strapped for shipment.



1 Retriever, shop-built, is made from 3x12's and steel. It is 17′ long, 22½″ high, 2′ wide. Steel shoes are of ⅜″ plate, 20½″ high, 15″ wide at bottom, 8″ wide at top.



2 All elements of problem solution are here: altered fork lift, with side shift; permanently fastened kiln cars; and retriever set for action. Note spacing of kiln cars.

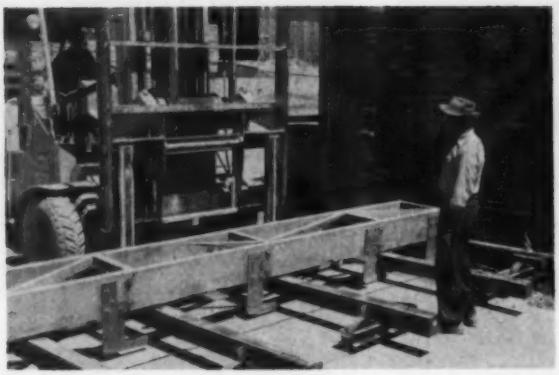
How a Mill Reduces Kiln

5 Inclined storage rails along kilns and cooling shed have grade of 2′ in 16′. Storage is clear of dirt and rock and this helps reduce degrade and planer knife damage.

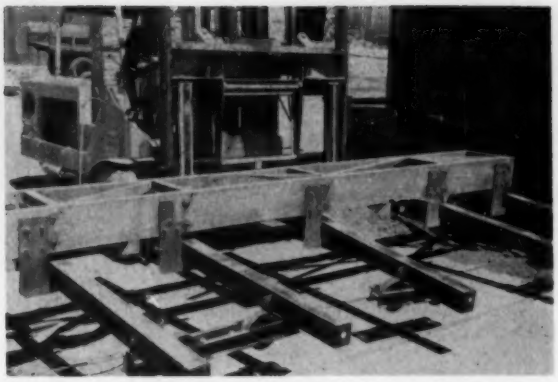
6 Pusher for kiln charges is set up by Mr. Joe Hughes. Chain has flat steel hook to fasten to first sticker. Link is then put on this hook on I-beam.

7 Yard inventory was reduced 35% after kilns were built. Yard now has one million feet. Being on a bluff, and well oriented, the air yard will be held in reserve.

8 Terrain drops steeply at left edge of kilns, so fork lift comes from right to build all charges. Both load and unload areas surfaced; lift operates on close clearances.



3 Positioned for pick up, retriever will be side shifted by Gerlinger lift. Car beams are 6x6's, 9'4" long. Fork lift was altered to allow this handling and use of retriever.



4 Ready for transfer to adjacent inclined storage rails or to charge end of the kilns, three-section kiln car will be handled in one movement, saving time and labor.

Lumber Handling Costs on a Problem Terrain

Hughes Bros. Lumber Co. has 3-way answer to problem of loading and unloading new kilns from one side only; alter fork lift to allow higher lift; fasten kiln car beams permanently; use a retriever for handling empty kiln cars.

These steps, taken by this Foresthill, Calif., operation, were not begun with installation of the kilns but grew out of a careful search for ways to cut handling costs. The Moore Dry Kiln Co. units had to be located where they are, on the extreme edge of a shelf of ground, and this meant a one-side-only operation throughout. Excessive handling resulted.

Since introduction of the ideas and methods described here, the handling costs have been reduced almost half. Downgrade has been reduced too.

Use of a fork lift for the kiln operation is part of an overall plan for full conversion to fork lifts. Three will be used. There will be no carrier on the yard. The Foresthill site is the remanufacturing plant. The company sawmill is seven miles away.

The 88-foot kilns hold between 36 and 38 M feet. As much as possible, the company uses charges of five cribs of six packages each. It also uses shade boards on all its cribs.

The basalt block kilns have cedar roofs. The 2x6 cedar was installed in three laminations and all of the cedar was dipped in penta. All of the lumber used was picked for heart.

The first layer was topped with 30-lb. paper and then stripped with half-inch stripping. The second layer was put on and then mopped with asphalt. The third layer was put on and this one was topped with three layers of 30-lb. paper. All grooves were mopped with asphalt.

Steam for the kilns is generated in a Gabriel boiler, utilizing planer and resaw refuse for fuel.

9 First step in unloading charge is beginning here. Gerlinger will take these three packages at one move. Machine is on dirt here but surfacing begins at first track.

10 Picking up last half, fork lift is easily driven into the slots formed by two double and one single kiln car trucks. Lumber and kiln car are handled in three moves.

DRY KILN INSTALLATION consists of three small and one large compartment C. M. Lovsted & Co. units. Three full-time kiln personnel plus weekend help operate the seasoning department. Kilns are supplied with steam from a waste wood-fired boiler. Oil is occasionally used.

FORK LIFT quickly loads smaller compartment. With each order a custom job, smaller loads result and small compartments are adequate.

Individually Controlled Kilns are Key to drying Pacific hardwoods. Speed of processing and stickering are critical items.

A relatively small company which has gained a national reputation for its kiln-dried alder lumber is Oregon Alder-Maple Co., Willamina, Ore.

The firm is operated by owners Albert, Ray and William Hurl and Paul F. Barber and his son, Paul A. Doug Miller is general superintendent and Leonard Holstad has charge of plant maintenance and the sawmill operations.

Originally the operators were loggers selling logs on the open market. They looked around for something more permanent and decided to get into a business where they controlled the sale of their products. Kiln drying of hardwoods seemed to offer an excellent chance for a sound, long-range business, even though it meant a long, tough road ahead to learn how to log, mill, dry and merchandise hardwoods, a vastly different endeavor than fir.

The main uses for alder lumber are furniture, interior finish and trim, various specialty items and paneling; the latter item has yet to be really developed on a large basis, but it does offer future potential. Continued research within the limits and scope of the people within this company will help find better methods of manufacturing and more commercial uses and outlets. Improved grading is needed in the trade.

Timber supply is a problem to the operator, due to the fact that alder doesn't grow in large blocks or in large volume per acre. Thus, a large area must be covered to keep a supply of raw material coming in.

Oregon Alder-Maple Co. has purposely stayed out of the cut-up business, since it is considered uneconomic from a sales standpoint to spread too thin. Most of their customers manufacture alder and various other species and it is felt that supplying this market is the proper point of specialization. Also, it is not felt desirable to invest large sums and tie up too much money in allied plants.

Species dried at present include alder, maple, Douglas fir and hemlock. Everything the sawmill cuts is dried except some small green squares. All softwood lumber is dimension size. Hardwood is random width. It is manufactured in the mill to size and dried accordingly.

The dry kilns consist of four compartments, each one individually controlled, and with a total capacity of 175,000 board feet. These are side-loaded by fork lifts, thus enabling the company to specialize in separate

Alder Drying Program

Practice is to operate kilns at a lower temperature than usual.

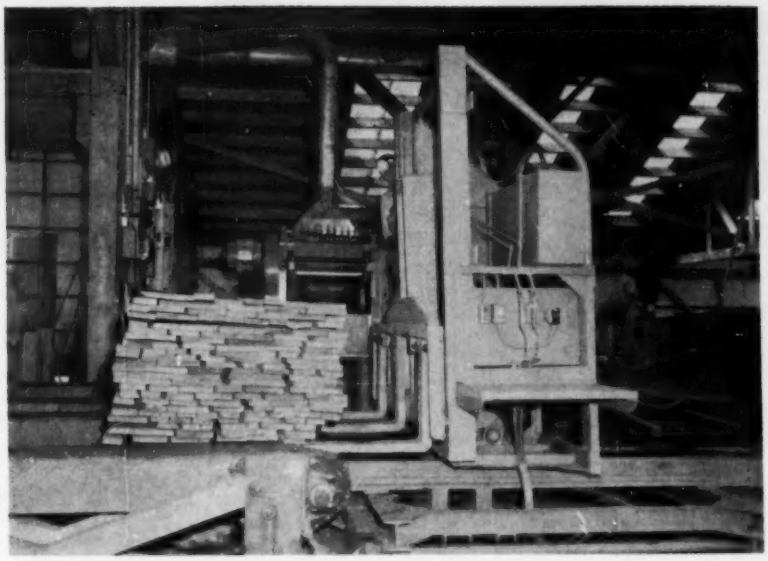
• First, the heat valve and spray are opened for from 10-12 hours at 140° F. to set the charge for color. (Moisture content is always over 100% to begin with.)

• Second, the dry bulb temperature is raised 10° to 150° and stays steady for 48 hours. The dry bulb is then raised 5° every 24 hours until the desired moisture content is reached. It takes 6 to 7 days to reach a moisture content of approximately 8%.

The lumber is conditioned for 12-14 hours after drying. This is done by turning the steam on and running at 160°. This action relieves the stresses set up during drying.

Fork lift trucks for weighing loads are equipped with Martin-Decker scales, permitting fork-lift loads to be weighed right on the truck. This device proves effective and useful during loading, especially in the case of highway loads.

PAUL BARBER, one of the owner-operators, checks the continuous automatic Foxboro recorder in the kiln control room.



IN THE SORTING SHEDS, loads of dried lumber are picked up by this feeding device. Loads are conveyed onto forks and the whole feeder moves into place in front of Buss 2-side surfacer which dresses top and bottom at rate of 70 fpm, takes several pieces at a time.

species or sizes that are dried in small volumes.

The complete processing of the alder log from the time of cutting at the stump through conversion to lumber and into the kilns must be as rapid as possible. In order to manufacture stain-free lumber, the whole process must take no longer than 60 days during the spring and summer season, April through October. The critical factors are exposure and temperature —too much of either will degrade the finished product.

Stickering must be done with precision. The stickers should not be over 18 inches apart; otherwise warpage will occur. End checking is generally not a problem if the manufacturing is carried out properly.

Alder requires entirely different drying schedules and procedure than normally followed for other species. In general, it takes about twice as long for proper drying down to 6-8% moisture content. In order to get any volume, therefore, twice as much space in the kilns is needed. And proper control of the seasoning is essential.

In getting experience in kiln drying, Oregon Alder-Maple was able to utilize much information developed by the Oregon Forest Products Laboratory and from other published material as well as advice of a practical nature from other kiln operators and C. M. Lovsted & Co., manufacturer of their own kilns. A large share of perfecting seasoning schedules resulted from trial and error.

For example, in early operating days they discovered that drying alder tended to deteriorate the paint on steel. This was solved, in part, by switching from steel to aluminum fans.

While the exact figure which the company has invested in their seasoning installation is not easily computed, in round figures, $150,000 is the amount which was needed to build the kilns and purchase needed equipment. This figure excludes boilers, fuel handling equipment and certain local on-site construction costs.

Maintenance and operational costs are figured on a basis of approximately 10 million board feet per year. General repairs to the kiln run about 25c per M.

Loading, drying and unloading cost $12-14 per M for 4/4 alder, while Douglas fir dimension costs $4-5. Stickering 4/4 alder costs another $2.50 per M.

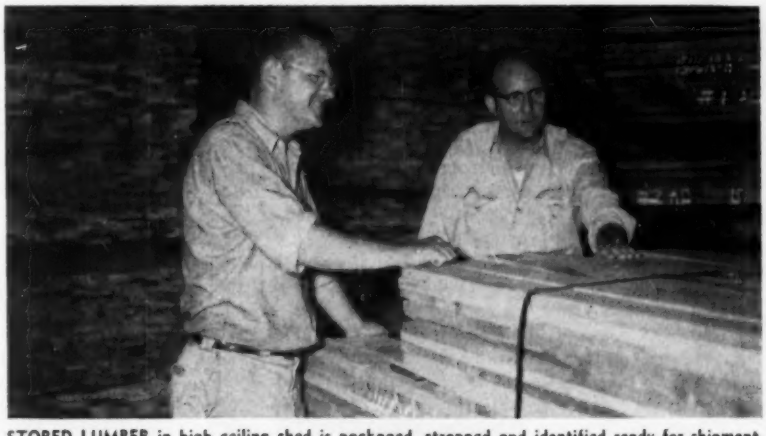
Kiln Facts

Type & number: side-loading (by fork lift); four compartments—three small and one large; low-pressure kilns by C. M. Lovsted & Co., Seattle, Wash. Concrete floor in yard, kiln area and storage sheds.

Capacity: 175,000 board feet total.

Steam source: Kewanee 75-hp portable fire box boiler; adding a 150-hp Gabriel boiler rated at 150-hp for additional steam. Type of fuel: shavings only; convert to oil if necessary when when fuel supply is low.

Kiln equipment: Electric: Sterling, U. S., G. E., Allen Bradley, Turnbull, Square D, Westinghouse. Foxboro recording instruments.



STORED LUMBER in high ceiling shed is packaged, strapped and identified ready for shipment. Acme strapping is used. During cold weather heat is turned on to maintain lumber in good condition. A shipment is inspected here by Paul Barber, left and Albert Hurl.

DOORS ARE PUT IN PLACE and removed by fork lift. Forks are dropped and then the column of the lift is put into steel harness on each door. Pin through two holes locks door in place for easy move.

Lessons Learned About

By PETER FIELD,

If a sawmilling industry has profitable outlets for most of its waste, and management dislikes to operate a steam-generating plant, how is lumber to be kiln dried? There is just one practical answer thus far—some type of internally fired kiln. Beginning over a hundred years ago, there was the smoke kiln widely used in the Southern States. Within the last twenty years, kilns burning gas or oil and circulating the heat and gases of combustion have been built. Some time later, kilns burning these same fuels, but utilizing an exchanging device to make heat available for drying were tried out.

It was this latter type kiln which Ivory Pine Company decided to use in 1951, but found it would have to work out its own construction and operation. It made use of research methods, sending out teams of two men each to learn all they could about: (1) construction methods that would provide good insulation at low cost; (2) heating devices and exchangers with adequate circulation; (3) instruments that would permit trouble-free operation.

A kiln with four chambers was built in 1952, two more were added in 1955, and two more in 1958. It has been an eminently satisfactory design, reasonable in construction, inexpensive to operate, and satisfactory in drying results. But, as in every phase of work, one learns as he goes, and in this case, each of these three elements has improved. In addition, and in spite of greatly increased expense of labor and materials, both building and operating costs have decreased. At the same time, drying efficiency has improved.

The resulting kiln is approximately 55′ wide, 75′ long, and 24′ high over all. The wall panels were built of lightweight insulating concrete, the rib members of structural concrete with steel reinforcement. Wall panels were poured into collapsible forms on the ground, in sizes up to 10′x20′ and tilted into position. Roof construction was first made with 5″ Zonolite slabs poured on the ground, lifted into place, and locked together. Steel wire mesh was used for strengthening and reinforcing. This Zonolite roof was then covered with several thicknesses of tarred felt, and soon trouble developed. The Zonolite slab roof was porous, the cover was impermeable and the wire mesh oxidized. In many places, rust split the slab and pieces of the Zonolite concrete fell into the chamber. Recently we have somewhat reversed this construction, putting corrugated aluminum sheeting on the "I" beam supports, and then pouring 5″ of Rockalite concrete directly in place. This is troweled to give a smooth water-proof finish and no additional roof covering is necessary.

Results have been excellent on the one-half of the kiln that has thus far been converted. The new roof sheds rain water and retains vapor and heat. That's all one asks of a kiln roof. In addition to the other advantages, the cost in place is a little less than the old type. The whole roof will be converted before long. Each of the eight kiln chambers holds twelve 5′ x 5′ x 16′ units, and constitutes a charge. Baffles are applied around sides and top.

Approximately 30 minutes are required for loading and unloading a chamber. The interior dimensions of each chamber are 18′ wide and 22′ deep. Doors are put into place by fork lift. To accomplish this, the forks are dropped and the column of the lift truck is slid into a steel harness constructed on each door. A pin through two holes locks it in place, and the door thus attached to the lift truck, can readily and easily be moved.

Doors and housing of the heat exchanger are of 3″ steel channels, welded to size, insulated with a 3″ thick pad of fiberglass and finally covered with an aluminum skin. These skins are attached to the frame with stainless steel, self-tapping bolts, and the bolt heads are insulated from the aluminum skin by Neoprene covered stainless steel washers. The original skins were steel sheets, and lasted less than two years. Some of the aluminum skins have been on for five years and show absolutely no signs of deterioration.

There is an operating corridor between each four chambers. In this space are located the fan-driving motors, electrical operating panels, air compressor, and natural gas burners. The heat exchanging chamber is constructed like the doors, it projects into the operating corridor at the rear of each kiln chamber. Four 72″ fans propel the air over and around the heat exchanger, and through the lumber at a rate in excess of 300 lineal feet per minute. There is a large valve at the rear, which automatically opens and closes to allow moisture to be removed, and outside air to enter.

The heat exchanger was built in the shop of the Ivory Pine Company out of 4″, 8″ and 16″ steel tubes with return baffles at each end. The complete heat exchanger is slightly over 10′ long and 5′ in cross section. The natural gas flame is injected into the 16″ tube which is lined with firebrick. All in all, the hot gases make a total of four passes through the tube before being exhausted into the atmosphere. The temperature of the spent gases runs from 175° to 200°. This well illustrates the high efficiency obtained from the heat exchangers.

The expulsion of humid air and the introduction of dry air is not left to nature, but is performed automatically by motorized fans. A change of 1½ degrees in the wet-bulb will do these things: (1) start or stop a motor which propels both a wet and dry air fan; (2) open or close slides in the big air valve which will exhaust moist air from either the bottom or the top of the heat exchanger, and inject dry air near the center. A typical performance during the middle of a run is for the kilns to exhaust moisture from 20 to 25 seconds, and stay closed 60 to 90 seconds.

Internal air circulation is induced by 72″ fans above and below the heat exchanger. They run at 400 RPM, and are on two sectional shafts driven from below by a 10 HP motor. Non-friction bearings are used at the top

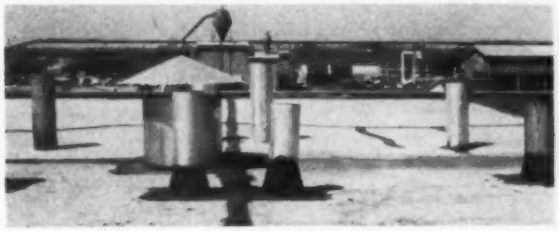
Internally Fired Kilns

Ivory Pine Co., Dinuba, Calif.

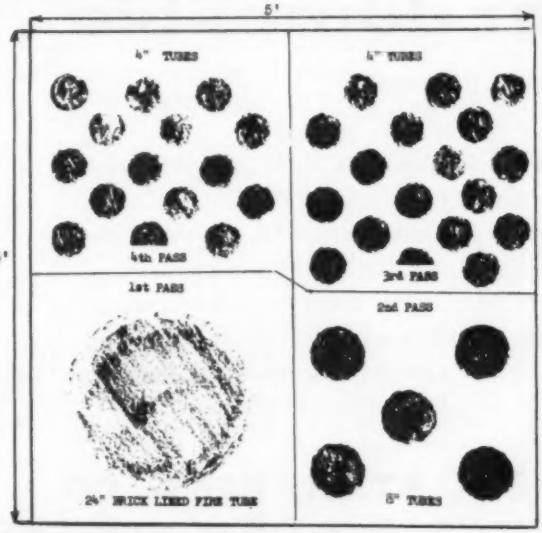
and bottom of the shaft, while four graphite impregnated bearings are used within the kiln. These bronze bearings are lubricated by an Alemite Oil Mist system. Conditioning of lumber without the use of steam has long been a problem in all oil or gas fired kilns. Continued experimentation has made tremendous strides in licking this problem. Directly above and below the heat exchanger, is a copper pipe with a large number of the finest obtainable fog nozzles. Water prior to flowing into the nozzles, is filtered and softened and the water pressure is increased to 120 psi.

At first, fuel oil had to be used. Even with the finest obtainable modulating oil burners, dry kiln down-time was considerable. Natural gas became obtainable during 1955, and the burners were immediately converted. Through the use of natural gas, burner down time is almost non-existent. Temperature control is most uniform, and the fuel cost is about ⅔ that of oil and everything stays free and clean from soot.

In spite of increased expenses, kiln operating costs are lower today than they were in 1954. Drying time is good. If you can control temperature, humidity, and circulation in a room, you can dry lumber. These things Ivory Pine Company does freely, automatically, and to a fine degree.

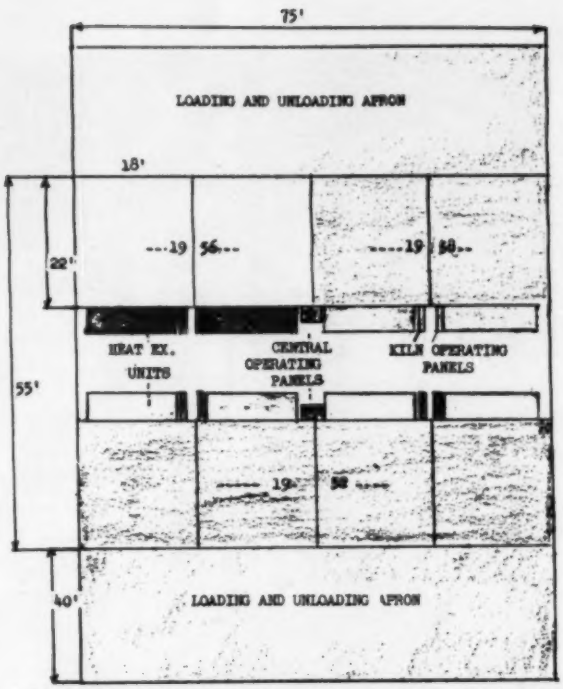


STEEL VENTS will corrode away in two to three years, was one of lessons learned. Stainless steel shows no deterioration after several years. Aluminum may last as long and is less costly.

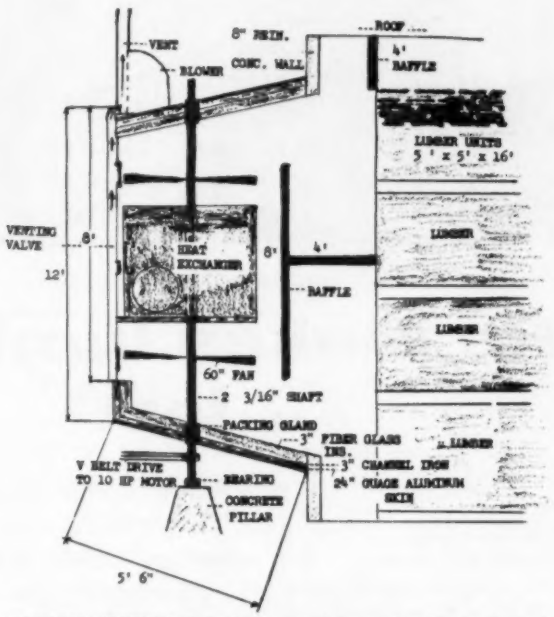


VERTICAL SECTION of gas fired heat exchanging units, above. Combustion products first pass through 24" brick lined fire tube–second pass through 8" tubes, third-fourth through 4" tubes.

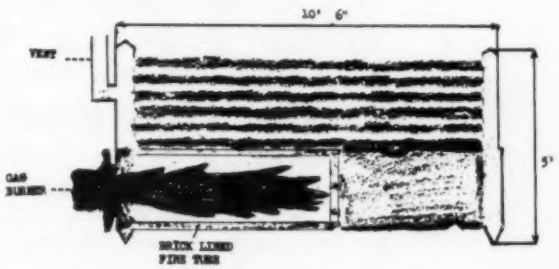
Right is longitudinal section through gas fired heat exchanging unit.



FLOOR PLAN of eight kiln chambers. Note operating corridor between each series of four chambers. Construction date is shown on kilns.



VERTICAL SECTION through heat exchanger chamber is shown in this sketch. Labeled items make it self explanatory.



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* Operator is using Signode C114 sealer after tightening steel strapping with Signode 3A tensioner.

Signode steel strapping transforms this 5000 bd. ft. load of lumber into one unit that can be dumped or dropped at the delivery site in one quick operation. Steel strapping can substantially speed up loading and unloading and make your men, equipment, and trucks more productive. Your customers get cleaner lumber in a neat, modern package. Pilferage in the yard and at the building site is practically eliminated. If you're not already strapping your lumber, contact your Signode man right away. Or write for additional information to:

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Component Talk Due At Jobbers' Session

Handling of component parts by jobbers will be discussed at the 18th annual meeting of the Northern Sash & Door Jobbers Association November 5-7 at the Greenbrief Hotel in White Sulphur Springs, W. Va.

A survey was taken recently among the NSDJA jobbers on this subject and the results will be discussed in detail at the meeting.

Association president Charles E. Rogers, Adams-Rogers Co., Indianapolis, Ind., says discussion is also scheduled on wood promotion and FHA standards.

•

Oswald Heads Simpson's Redwood Operations

Gilbert L. Oswald has been named general manager of Simpson Redwood Co. and assumes responsibility for management of Simpson's northern California properties and facilities. He has been with Simpson since 1946 and has served as assistant general manager of California operations since mid-1958.

Gordon J. Manary, vice-president of Simpson, says he plans to continue as vice-president of Simpson until his retirement. During this period he will act as advisor to the California operations and do special assignments for Simpson Timber Co., parent organization in California.

Mr. Manary has been associated with the lumber industry for over 40 years.

•

Spray Protects Pine Logs Against Borers

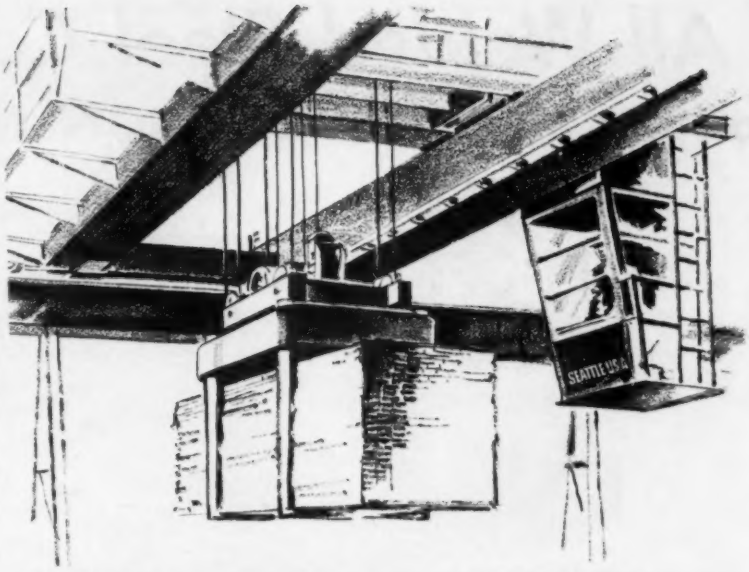
Benzine hexachloride applied to white pine logs in outdoor storage is very successful in preventing damage by wood borers.

This has been established in tests by Fessenden Companies, Inc., and the University of Massachusetts Extension Service.

Logs so treated were sawn and checked against a deck of unsprayed logs. Damage was minor to the sprayed logs. Unsprayed white pine logs in outdoor storage for six months were reduced about two grades due to wood borer damage. This meant a difference of almost $30 a thousand board feet.

•

• Wrangell Mills has extended its lease of the Wrangell Mills, Inc., in Wrangell, Alaska, for three years. Wrangell Lumber Co. is an affiliate of Alaska Lumber & Pulp Co., which is building a $70 million pulp plant at Sitka.



"Job-engineered" for unit load-handling

EDERER grapple cranes are the "job-engineered" answer to the specialized materials handling requirements of the forest products industries—where many types of unit loads must be moved. These cranes can be built to handle practically any type or size of unit load at whatever speed you require . . . stack as high as overhead clearances permit—and require only eight inches clearance between stacks.

Push-button controls operate the grapple. It will turn through a complete revolution in either direction, allowing freedom of handling and load spotting. Arms open and close hydraulically and adjustable pressure prevent any damage to loads.

A grapple crane can be "job-engineered" for your materials handling requirements. Why not send for our grapple crane Bulletin C-203?

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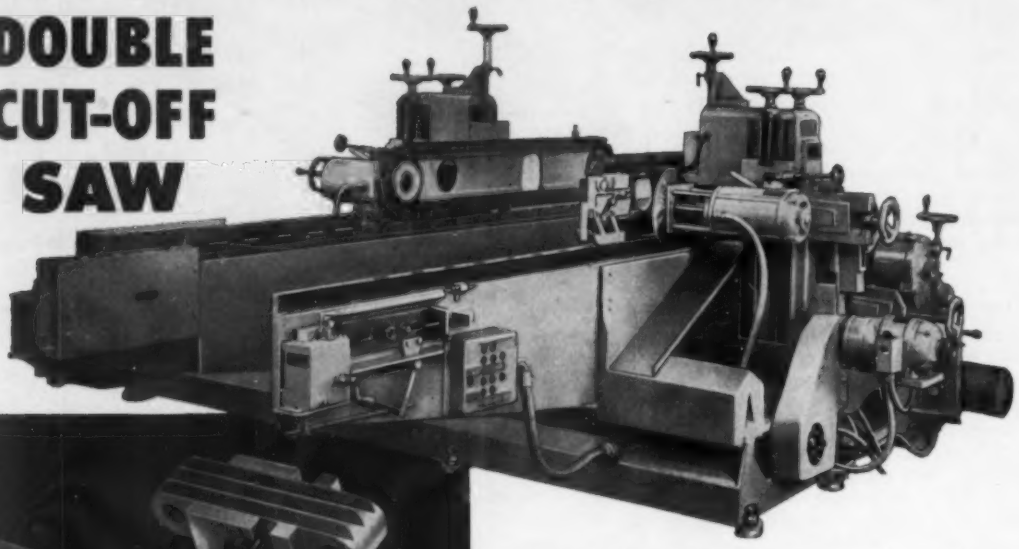

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MULTI-V CHAIN

This special chain is furnished on the M-J No. 300. Note the 45° angle of the three V grooves to prevent sideways movement. The inverted center link clearly illustrates the full length bearing surface in both horizontal and vertical planes. There is approximately 55% greater horizontal and 95% more vertical bearing area than with low angle single V-chain. Patented snap dogs are standard equipment.

The No. 300 is offered to meet varying working conditions. It can be equipped with regular or high speed cope motors, stationary or jump dado arbor or other accessories as required. The sturdy, welded steel construction . . . rubber block hold-downs . . . snap-on feed dogs . . . and variable feed drive are only a few of its outstanding features.

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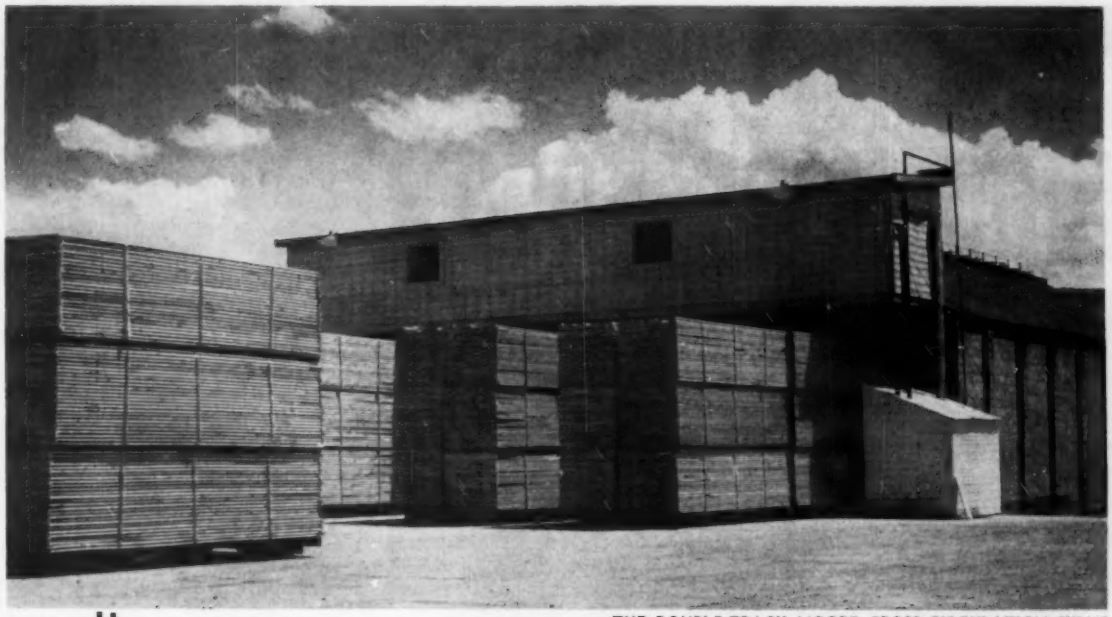

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PROFITABLE LUMBER DRYING—the inevitable result of a well coordinated drying program and a good grade of lumber—is taken for granted by users of proven MOORE *Cross-Circulation* KILNS. Consistently superior, uniform seasoning of MOORE KILNS has given them this confidence.

- Flexibility is the key word for MOORE *Cross-Circulation* Drying—the same system can be installed in conventional brick, masonry, tile or in metal insulated pre-fab buildings and adapted to any drying program!

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World's Largest Manufacturers of Drying and Handling Systems for Lumber and Veneer

FROM ¼ HORSEPOWER—

ACTUAL SIZE NO. 25, ¼" PITCH

Average Tensile Strength of 925 lbs.

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Average Tensile Strength 95,000 lbs.

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2½" PITCH

ACME Roller Chain applications range from fractional horsepower drives to those in excess of a thousand horsepower.

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Your local Distributor can supply you promptly with ACME Roller Chains in 12 standard sizes, from ¼" pitch, ⅛" width to 2½" pitch, 1½" width.

Write Dept. 33-K for new 100-page illustrated technical catalog including new engineering section showing 36 methods of chain adjustments.

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Four New Members Added by DFPA

Four more plywood mills have joned Douglas Fir Plywood Association. The new subscribers bring the total number of DFPA affiliated plants to 125.

They are: Bohemia Lumber Co., Culp Creek, Ore.; Willamette Sheathing Corp., Arcata, Calif.; Georgia-Pacific Corp.'s plywood plant No. 2, Samoa, Calif.; and Weyerhaeuser Co.'s new Snoqualmie, Wash. plywood mill.

The Bohemia Lumber Company will begin production of plywood sheathing in October. L. L. Stewart is president of the company, which handles its own sales. R. W. Kensit is plant manager.

Willamette Sheathing Corp.'s parent firm is the Willamette Plywood Corp., Aumsville, Ore. Principals are Harold Leevres, president and Forrest Dean, plant manager. Sales are handled by Roddis Plywood Corp., Marshfiield, Wis.

Sanded grades of plywood are being produced at Georgia-Pacific's new No. 2 plant at Samoa. Principals are R. E. Floweree, Jr., vice president; Vance Vollmer, plant manager, and Jack Harmon, production manager.

Weyerhaeuser's new Snoqualmie Falls plywood mill produces hemlock sheathing. Cloy Archer is plant supt.

•

Alaska Plywood Plant Destroyed by Fire

The former Alaska Plywood Corp. plant in Juneau, Alaska, only recently put back in production following purchase by Juneau Lumber Co., was destroyed by fire in mid-August. Thomas A. Morgan, president of the purchasing firm, said it was too early to determine if the plant would be rebuilt. Insurance did not completely cover the loss, estimated at $600,000.

The new owners had received tax lien and property tax relief from the city and assurance from the U. S. Forest Service of a timber supply.

•

Idaho Plywood Plant Starts Production

Payette Plywood Corp., Payette, Ida., has started production. It is a sheathing layup plant that is expected to produce 50,000 square feet daily.

Both green and dry veneer are being used. This material is being purchased on the open market from west side veneer plants.

Personnel include Rudy A. De Lateur, Hoquiam, Wash., president; Frank Baudek, vice-president and production manager, and A. V. Kinney, manager and secretary treasurer.

Industry Leaders endorse WOODS Diagonal Planers!...

KILN DRIED PONDEROSA PINE

NEW MEXICO Timber Co.

DOUGLAS FIR · WHITE FIR · SPRUCE

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ALBUQUERQUE, NEW MEXICO

December 10, 1958

S. A. Woods Machine Co.
27 Damrell Street
Boston 27, Massachusetts

Gentlemen:

We have been operating our #484-M Woods 10-knife matcher at speeds ranging from 300 to 400 feet per minute, and find its performance greatly exceeds our expectations.

The quality of the surfacing is equal to that of work done on a good moulder. There are no perceptible knife marks, no washboarding, no end sniping, no chipped grain around knots, and no gouging or tearing out knots.

At our Winslow, Arizona plant we are operating a conventional #414-M Woods matcher, which does very good work, but the smooth velvety appearance of the lumber processed by the #484-M gives the New Mexico lumber much better texture appearance, and has already created a customer preference for Bernalillo boards.

The operation of the diagonal cylinders keeps the lumber up against the guide, so there is no necessity of carrying any lead in the guide, no heavy tension on the feed rolls, and consequently there is no perceptible wear of either.

Much operating time is ordinarily lost on conventional cylinder machines, because of having to stop to clean out knots and broken pieces of lumber from under the chipbreakers and cylinders. The operation of the diagonal cylinders keeps all of this debris over on the guide side, where the lumber keeps it cleaned out of the machine.

We can recommend this matcher in every respect, and will be pleased to show it in operation to anyone interested.

Very truly yours,

NEW MEXICO TIMBER CO.

C. K. Wickens

C. K. Wickens
Vice President

CAL-IDA LUMBER COMPANY

A DIVISION OF J. G. BOSWELL COMPANY

Manufacturers of Western Forest Products

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P. O. BOX 753 · AUBURN, CALIFORNIA

December 31, 1958

S. A. Woods Machine Co.
27 Damrell Street
Boston, Mass.

Gentlemen:

We are pleased to write you as follows.

We have been operating our Woods A-480 M Diagonal planer and matcher for over two years. The results have been everything we expected. We are pleased with its performance, its maintenance and production volume. I consider the diagonal top and bottom heads as the top improvement to a planer, occurring in my lifetime.

From the fine work of the Woods diagonal planer, we are recognized as the best shipper of fine lumber products West of the Mississippi.

Yours very truly,

CAL-IDA LUMBER COMPANY

By Geo. R. Duff
Geo. R. Duff

GRD:BW

MANUFACTURERS OF ALL TYPES SPECIALTY CUT STOCK · WINDOW AND DOOR TRIM · BUILDING AND BOX SHOOK

Write us today for more information about the new WOODS A-480M and A-484M DIAGONAL PLANER and MATCHERS of revolutionary design.

S. A. Woods Machine Company
27 Damrell Street
Boston 27, Mass.

JENKINS
CUTS TRIMMING COSTS
80%

ABOVE: Willamette Plywood Corp., Aumsville, Oregon, cut their cutting and trimming costs 80% when they installed their two new Jenkins 192's with transfer table. Former trimming costs were $1.25 per thousand board feet. New costs are only 25¢ per M. Jenkins speed, accuracy and ruggedness are showing similar savings for plants all over the world.

JENKINS LEADS THE FIELD IN OPERATING EFFICIENCY AND PRODUCTION ECONOMY

Add up these ***JENKINS PLUS FEATURES*** — your assurance that the equipment you purchase is designed and built to do the job accurately and at the lowest possible cost.

WIDE SPLIT RAILS: Better balance, longer life — no more hump back, cantilever construction.
DUAL TRAVERSE: Sturdy, *parallel* traverse — no more binding or column rocking. You get maximum cutting accuracy.
OPEN DESIGN: Easy, *safe* arbor adjustment — no more standing on your head to change tools — quick cleanup too.
RUBBER FRICTION PLATES; SPRING LOADED, RUBBER WHEEL HOLDDOWNS: Keeps panels positively aligned for most accurate cutting. Prevents face marring.
FAST, ACCURATE TRANSFERRING: Automatically cuts handling in half. Keeps work moving smoothly and accurately through cutting cycle — no hoppering or stacking between operations.

See how modern Jenkins equipment can help you cut your production costs. Write or call today.

EXCLUSIVE WITH JENKINS
OILOMATIC PISTON TYPE CHAINS

The most accurate and durable feed chain in the industry. Moly-impregnated phenolic laminate bearings running in half round bearing bronze track eliminate *all* sidewise movement, will not seize or gall. Half round bearings under *every link* give 10 - 50% more bearing surface than any other chains — links are precision milled and ground from solid alloy steel. Mating sprocket and link radii are induction hardened for long wear. Track has automatic pressure lubrication.

JENKINS DEALERS: **EAST** — James Murphy, Cambridge, Mass • H C Whitlock Corp, NYC, N Y • Dimension Mill Eqmnt Co, Deansboro N Y • H W Krehnbrink, Baltimore, Md • **MIDWEST** — Holtson Mach Co, Dayton, Ohio • Tom Clancy, Detroit, Mich • Green Mach Co, Chicago, Ill • Evan Kroll, Peru, Ind • **SOUTH** — Garrison Mach Co, Statesville, N C • Palmer Mach Co, Jacksonville, Fla • Wm Page, Oliver Mach Co, Memphis, Tenn • Jack Flanders, Little Rock, Ark • Tri-State Mach Co, Dallas, Tex • **WEST** — Cascade Saw & Mach Co, Chehalis, Wash • Hall Mach Co, San Jose, Cal • Jenness Mach Co, Los Angeles, Cal • **CANADA** — Upton Bradeen & James Ltd, Toronto, Ont.

ENGINEERED AND BUILT BY KOHLER-JOA KJ **CORP., SHEBOYGAN FALLS, WISCONSIN**

Rely on your AIM*...Thompson Lumber Company does...

Lumber bundling cuts unloading time 50%

THOMPSON LUMBER COMPANY, MINNEAPOLIS, MINNESOTA, worked with their Acme Idea Man to develop a system for bundling lumber orders with Acme Steel Strapping. The result: important time and money saving benefits for both themselves and their customers. (Idea No. U5-5)

Acme Idea Man Jim Kelly helps many progressive companies solve material handling problems.

Lumber orders, steel-strapped into tight, secure bundles cut yard handling time and reduce unloading time at the jobsite 50%. The time saved by this method has made possible up to 6 extra jobsite deliveries per day... an important advantage in providing better customer-service. Split roller-beds on trucks also allow delivery of two separate, steel-strapped orders on the same truck.

Customers like these steel-strapped lumber orders, too. They are easier to handle on the jobsite, improve housekeeping, and virtually eliminate pilferage.

***Rely on your Acme Idea Man's** experience in solving packaging and material handling problems. Write Dept. LBU-109, Acme Steel Company, 1025 Sixth Avenue South, Seattle 4, Washington. Also Portland, Oregon.

ACME STEEL **STEEL STRAPPING**

High Pressure Pneumatic Conveying Equipment

RADER PNEUMATICS INC.

1739 N. E. 42nd Ave. • Portland 13, Oregon

INDUSTRY TRENDS (Cont. from pg 6)

PLYWOOD PLANTS CONTINUE TO BUILD with near immediate post war pace. One reason is economics that make it essential for sawmills to expand to multiple products. Other factors are the continued demand growth for more plywood and conversion from veneer mills to complete plywood plants to protect markets and insure constant operation. Probably 22 plants will be added before the year is out, boosting the total to 147 softwood plywood plants in western states and bringing total capacity up to 8 billion square feet. Price fluctuations may slow up, but has not stopped, the steady growth of this industry. The Douglas Fir Plywood Association will spend close to $5 million this coming year to help step up new markets and product development.

FUTURE CONSTRUCTION CONTRACTS are also on the rise. July set an all time high for the month, according to F. W. Dodge Corp., reaching $3,656,537,000, up 1% over July of last year. Largest gains were in commercial, manufacturing and religious buildings. Cumulative totals for the first seven months were: non-residential buildings at $6,895,958,000, up 5%; residential buildings at $10,569,533,000, up 31%; heavy engineering, $5,045,872,000, down 12%. Total construction was $22,511,353,000, up 11%.

FOREST PRODUCTS CARLOADING through July totalled 273,893 for the western states, up 145,741 or 13.8% above the same period of 1958. This increase in car demand for forest products is 1.6% under the carloadings for the same period of 1957.

CALIFORNIA PASSES UP other West Coast states in the total number of employees engaged in the forest products industries. Relative importance of such employment to all industry in the state, however, is 10 times greater in Oregon. In each of the three West Coast states, the forest industries represents over a half billion dollars of annual manufacture: $573 million in Washington; $593 millions in Oregon and $672 millions in Calif. Percentagewise, 13.8% of the employees of these states earn their living in forest products industries; 6.3% in California, 58.1% in Oregon and 29.3% in Washington. By numbers of employees they are: California 1,252,508; Oregon 133,390; Washington 226,444. Included are logging, sawmilling, planing mills, plywood, pulp and paper and paper products.

TO CONSOLIDATE FORCES ON LUMBER PROMOTION, retail lumber dealers and lumber manufacturers are planning a 10-year promotion program to be as "all-inclusive as possible" for all wood products. An advisory committee from the National Retail Lumber Dealers Association will be established to meet with the manufacturers to strengthen the national wood promotion program.

The Newman G-20

With Adjustable Knife Bars Will More Than Double Your Knife Grinding Production... Accurately

Knife grinding speed . . . and accuracy . . . go up, maintenance costs come down with the Newman G-20. The G-20 is the proven way to get superior cutting edges on chipper, planer and hog knives at extremely low cost.

Because it is now available with adjustable knife bars which allow you to grind various degrees of bevel on chipper knives, the G-20 is the most versatile grinder on the market today. It grinds up to 8 knives at one time (up to 160" of knives) with a variable speed of 50 to 150 feet per minute.

The G-20 is non-reciprocating, has full rotary action. It provides a continuous grinding motion for faster wet or dry grinding. For greater value, increased production and longer machine life, make sure you investigate the Newman G-20. Write or call for Bulletin G-20, today.

Newman G-20 Automatic Knife Grinder
Adjustable Knife Bars Are Available

Newman Manufactures 36 Different Machines For The Woodworking Industry

Newman Machine Co., Inc.

Greensboro, North Carolina, U. S. A.

J. NEILS LUMBER CO.

LIBBY MONTANA

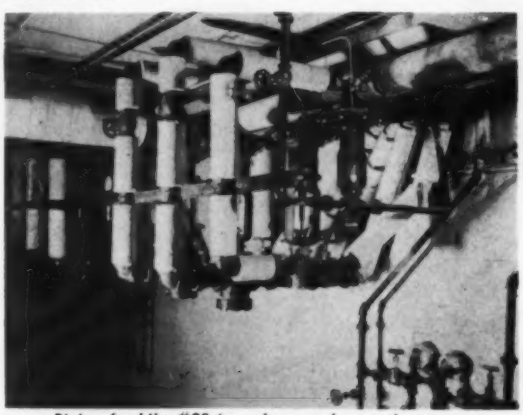
REPEATS

Early in 1959 J. Neils put into operation kilns #20 and #21. Lovsted "Direct-Flo" In-Kiln Syncrogear individual drives for each 84" all aluminum alloy fan. These were put next to 19 long line shaft kilns. Now—in the fall of 1959 J. Neils repeats with kilns #22 and #23 Lovsted "Direct-Flo." These are under construction. Uniform drying, up-to-date design, and Lovsted service paid off.

Palmer Knudsen, Superintendent of Stacking and kilns at the Foxboro Recorder Controller and electrical cabinet of kiln #20.

Excavating for Lovsted kilns #22 and #23 next to Lovsted kilns #20 and #21.

Opening kiln door of kiln #21.



Piping for kiln #20 in underground operating room.

Many other companies have duplicated and triplicated their original Lovsted "Direct-Flo" kilns.

IT PAYS TO BUY LOVSTED'S DIRECT-FLO

C. M. LOVSTED & CO., INC. 4000 W. Marginal Way, Seattle 6, Wash. Phone: WEst 5-4000

591 Howard St.
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1227 Hopaka St.
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1001 North Main Street
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123 Juan Luna St.
MANILA, R.P.

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NEW WESTMINSTER, B.C.

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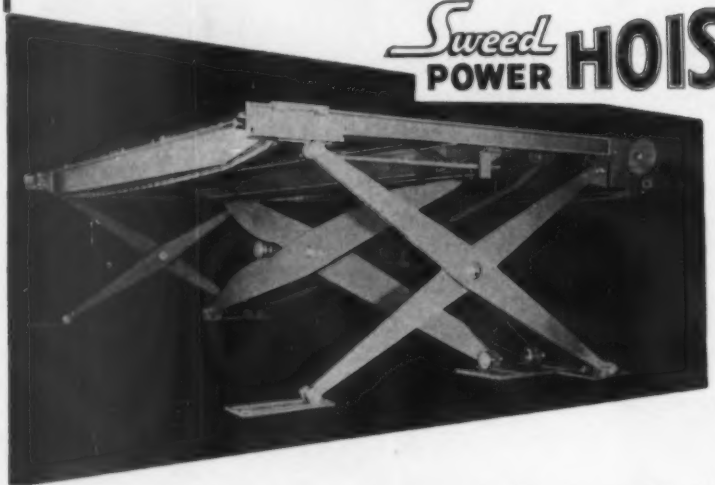
VEN-COR
. . . the remarkable saw—for cutting veneer core stock

STURDY • AUTOMATIC • LABOR SAVING
BIGGER PROFITS FOR ALL VEN-COR USERS

SPEED-FEED
. . . the cam activated feeder adaptable to any veneer dryer

COMPACT • RUGGED • RELIABLE
LABOR SAVING, TROUBLE-FREE SERVICE



Sweed POWER HOIST

CAM AND SCISSOR CONSTRUCTION
with conveyor chains or platform

. . . in 3 Sizes

★ **GIANT** Sweed
12,000 lb. capacity

★ **JUMBO** Sweed
7500 lb. capacity

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4000 lb. capacity

The answer to all your lifting problems.

Adaptable to manufacturing plants of all types.

and now — this innovation . . .

Sweed SCRAP CHOPPER . . . PROFIT FROM A PROBLEM

Here's the answer to the metal strap problem in your plant. The SCRAP CHOPPER is easily portable, requires small space for installation. Mount it on an oil drum, for example. Cuts strap or wire into small pieces. The SCRAP CHOPPER will reduce your strap or wire problem to profit.

Write for Sweed brochures today . . .

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Sales Representative
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Gold Hill, Oregon — Ulrick 5-1145
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Get Set for Higher Earnings!

Haul with the forest industry's proved, cost-saving diesel!

One of four Autocars owned by Roscoe Denney of Eureka, California, on a 65-mile haul to the Brightwood Lumber Company at Arcata.

AUTOCAR

Autocar's widespread use throughout the forest industries results from one basic, time-proved fact: Autocar hauls more at less cost . . . consistently earns more for its owner!

The reason behind this extra earning power? You get the answer when you make your own comparisons—factual comparisons that show you in advance *why* you're dollars ahead when you haul with Autocar diesel.

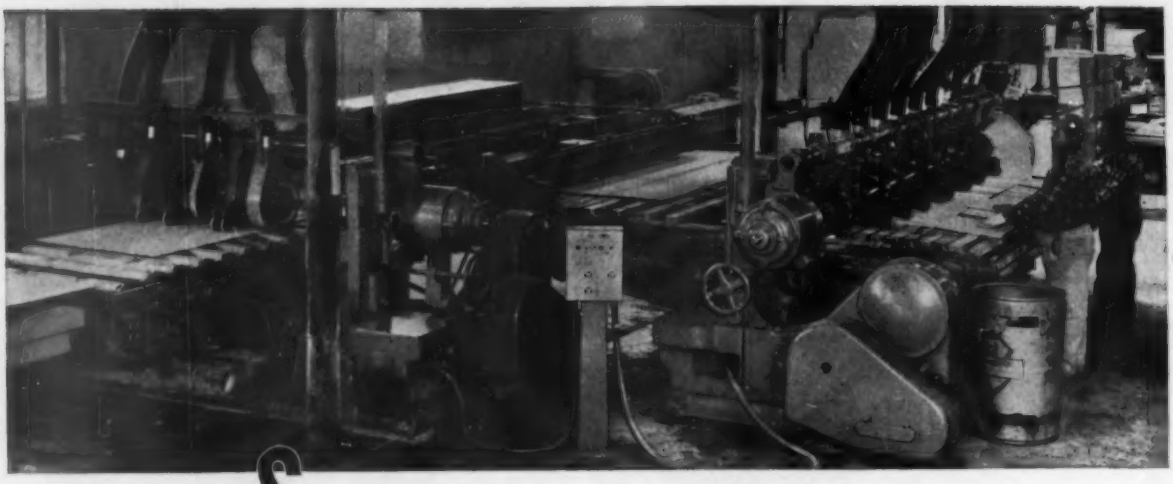
And remember, you get complete, one-stop service on your Cummins diesel-powered Autocar from your White-Autocar dealer.

Call him today! Ask for your local Autocar representative and let him show you how you can get on the road to higher earnings now!

When you get down to factual comparisons your logical choice is . . .

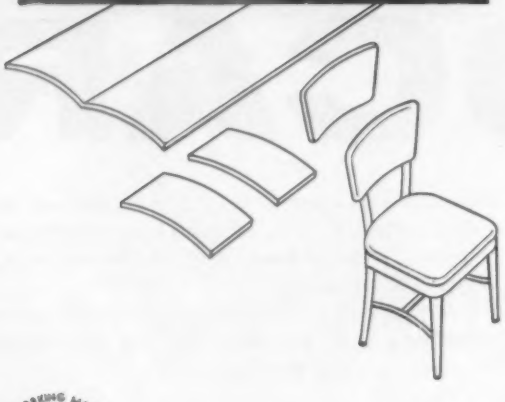
Autocar
"World's Finest"

Division of
White Motor Company
Exton, Pa.



SWAIN INDUSTRIES, INC.

CUTS FLAT AND CURVED PARTICLE BOARD



On GREENLEE slat-bed multiple cut-up saws with automatic transfer

Swain Industries, Inc. of Seymour, Indiana had a difficult problem to solve. They needed equipment that would not only cut flat but *curved* sheets of particle board . . . speedily and economically. Representatives of Greenlee and Swain working together in close cooperation came up with the answer.

The Greenlee Cut-Up Saws shown above can take five 37" x 118" double curved panels and convert them into 90 accurately cut chair backs in one minute. Flat sheets can be cut even faster.

Feed rates are variable up to 110 feet per minute. Set-ups are made easily and quickly . . . can be changed from flat to curved material in a short time. If you have cutting problems involving particle board or any other type of panels, invite Greenlee to help solve them. Write for complete information.

MACHINERY & TOOLS
GREENLEE

WOODWORKING MACHINERY MANUFACTURERS ASSOCIATION WMMA

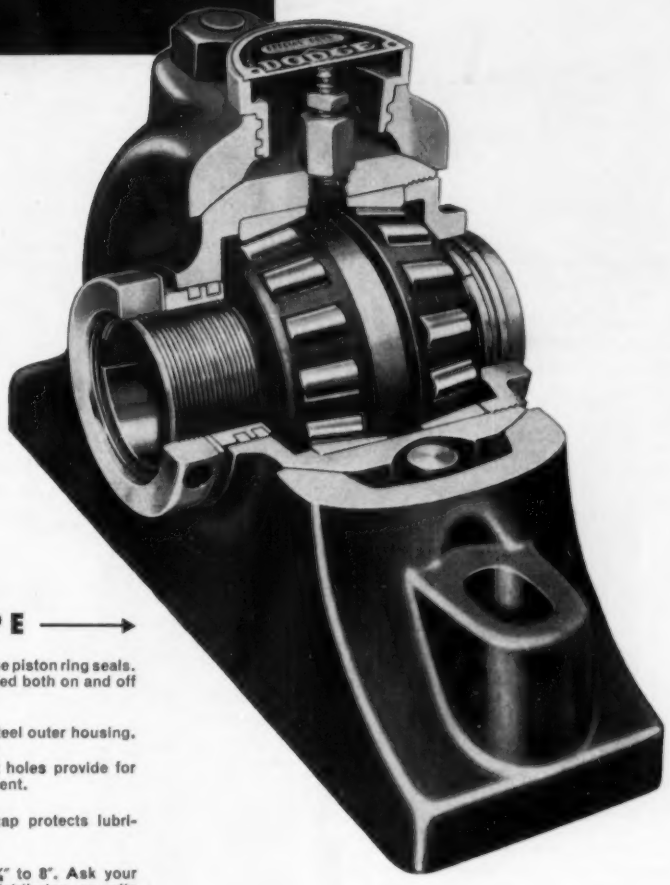
GREENLEE
BROS. & CO.

1717 TWENTY-FIRST AVE.
ROCKFORD, ILL.

DODGE PILLOW BLOCKS

WITH TIMKEN BEARINGS

America's super-quality line—with a 35 year record of keeping performance *up* and costs *down!* Five types—to fit practically any service condition. All assembled, adjusted, lubricated and *sealed* at the factory for precision performance—long life—dependability.



SPECIAL DUTY TYPE →

- Designed for extreme precision and high load capacities.
- Fully self-aligning.
- Special Duplex Timken Roller Bearing with tapered bore.
- Split tapered sleeve with straight cylindrical bore extends through entire length of housing.
- Easy to mount or demount. Adapter nut (or collar) clamps adapter sleeve to shaft with extreme firmness.
- Automotive type piston ring seals. Bearing is sealed both on and off the shaft.
- Rugged semisteel outer housing.
- Elongated bolt holes provide for lateral adjustment.
- Special dust cap protects lubrication fitting.
- Shaft sizes 1¾" to 8". Ask your local Dodge Distributor—or write us for Bulletin A670 giving complete technical data on America's most complete line of mounted bearings.

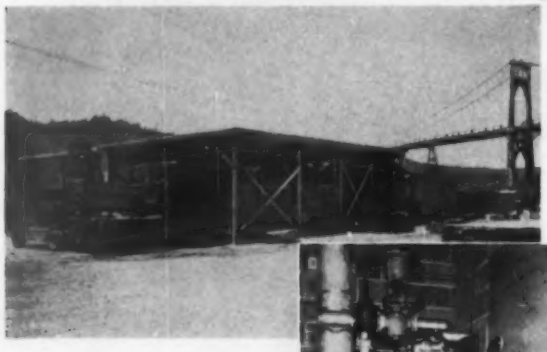
DODGE MANUFACTURING CORPORATION, 900 Union St., Mishawaka, Ind.

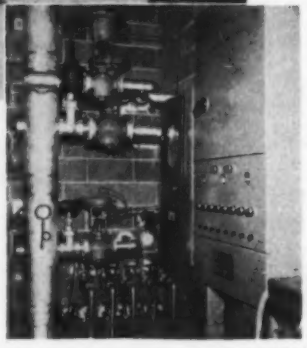
CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory trained by Dodge, he can give you valuable help on new, cost-saving methods. Look in the *white* pages of your telephone directory for "Dodge Transmissioneer."

DODGE
of Mishawaka, Ind.

FRYER *DRY KILNS*

LOWEST DRYING COST PER THOUSAND





Above shows exterior view of complete drying plant just completed by Medford Machinery Co. at Portland Lumber Mills, Portland, Ore. Includes 2 Fryer Type C, double track, 88-ft. dry kilns, control room (interior view at right), cooling sheds, loading and unloading facilities.

Consider **all** the factors before investing in **any** dry kiln. Long range plans of your mill . . . your initial investment . . . maintenance costs . . . species to be dried . . . grades desired . . . depreciation . . . taxes, etc.

We specialize in Dry Kiln design, engineering and construction, and can give you a firm price under **one complete contract** for the lumber drying installation that will give you the lowest drying cost per thousand . . . with resulting increased profits.

We guarantee price, assume undivided responsibility and guarantee performance.

VERY LATEST PROVEN Dry Kiln DESIGN

New electronic controls, reversible, direct air flow, new airplane type fans and increased air velocity in Fryer Dry Kilns give faster, more uniform drying of lumber at lower kiln operating cost.

AVAILABLE COMPLETE • READY TO OPERATE • UNDER ONE CONTRACT PRICE

FRYER DRY KILN

SINCE 1915

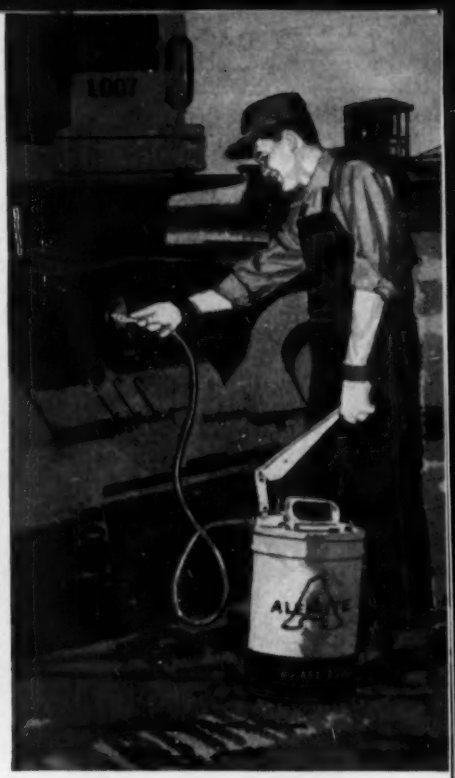
MEDFORD MACHINERY COMPANY

AVenue 6-1606

6621 N. St. Louis
Portland, Oregon

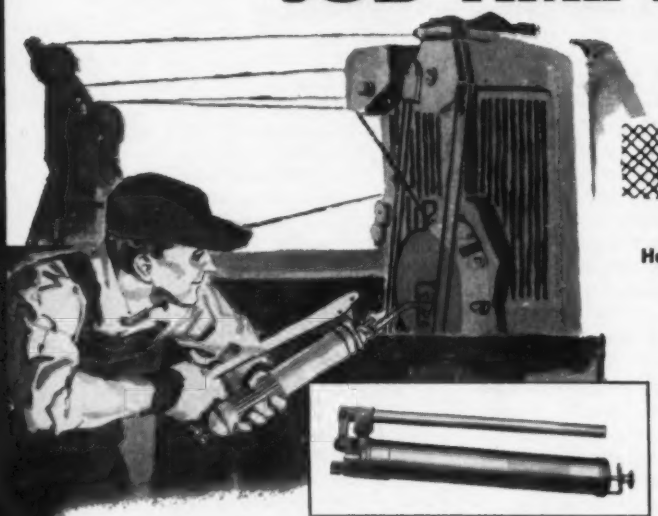
Alemite Loader Pump is 3¾ Man-Hours Faster than hand loading, for every 100 lbs. of grease used! Insures delivery of *clean* grease, free of dust and grit that can cause costly breakdown. Just a few strokes fill gun. Models to fit and seal any original container—from a 400-lb. drum to a 25-lb. pail. No mess—no waste!

Alemite Transfer Pump is 63% Faster than hand method! Transfers 37 lbs. of pressure gun grease per minute, direct from original drum to loader pump, bucket pump or power gun. Lubricant is always sealed—fully protected from contamination or waste. Fully adjustable delivery rate. Weighs only 15½ lbs.!



Alemite Bucket Pump With Adjustable Leverage and Greater Capacity lubricates hundreds of bearings with fewer refills! Handles either oil or grease. Adjustable three ways for using any lubricant in any weather . . . at pressures from 2,500 to 5,000 lbs. Capacity, 35 lbs. Sturdily built for construction industry use.

HOW ALEMITE PUTS MORE JOB-TIME INTO YOUR DAY



. . . and cuts maintenance costs, too!

Heavy-Duty Alemite Hand Guns Save Valuable Time On Toughest Lube Jobs! Handle all pressure gun greases. Spring-primed for positive delivery—long operating handle for maximum leverage. Follower rod disappears after filling. Loader fitting permits fast, clean filling (or gun may be filled by suction). Pressures up to 15,000 lbs.; lubricant capacity up to 24 ounces.

Send for complete catalog today!

ALEMITE, Dept. 00-109
1850 Diversey Parkway, Chicago 14, Illinois

Please send me your complete catalog on Alemite lubrication equipment for the construction industry.

Name .....

Company .....

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Faster Lubrication With Alemite Means Less Downtime—More Job-Time!

Symbol of SW Excellence

ALEMITE DIVISION
STEWART-WARNER CORPORATION

Instrumentation of Dry Kilns

By GENE OLSON, Instrumentation Engineer, Minneapolis-Honeywell Regulator Co.

The lumber dry kiln is generally thought of with respect to its function, that of changing green lumber into dried lumber. To those whose job it is to dry lumber, this concept is entirely too general. They must think of a kiln as a piece of equipment, the action of which is so thoroughly under their control that they can make it perform in the manner that will best suit their purpose.

The lumber dry kiln is composed of one or more chambers, rooms, or tunnels in which temperatures and relative humidity can be maintained at any desired level by means of automatic control. A properly controlled dry kiln will dry lumber to a specified moisture content in the shortest time possible, consistent with avoidance of kiln degrade.

Filled Actuated System. Industrial instruments accurately control temperature and humidity in order to attain the desired moisture content by the use of two pen wet and dry bulb thermometers with pneumatic control on each pen. The thermal systems are usually vapor actuated with ranges up to 200°F and both control units are either of the on-off type control or modulating (proportional) type of control.

Two dry bulbs are used, on opposite walls of the kiln. Both are connected to a measuring element. The thermal systems are so designed that the dry bulb reading will always be that of the bulb with the highest temperature. The point of highest temperature will vary from time to time, as the direction of the fan rotation is reversed. This pen controls the flow of steam to the heat exchanger by means of a diaphragm control valve, arranged to fall closed if the air supply should fail.

A single wet bulb is used. This is mounted adjacent to one of the dry bulbs. This controls a steam spray valve to increase the moisture content of the air and a diaphragm operator to open one or more vents to reduce the moisture. The valve and operator both fail closed.

Pneumatic control systems function on the principle that the air pressure to the diaphragm control valve determines the valve opening, and it is this pressure which is governed by the control instrument in accordance with the variations of temperature in the dry kiln. The air-to-valve pressure depends upon a dynamic balance between the supply of air to the pneumatic system and the bleeding of air from the system.

If the supply is greater than the bleed, as determined by the control action, the valve approaches 15 pounds, if the bleed is greater the valve approaches 3 pounds, 3 pounds being the industry standard starting point. 15 pounds is the industries standard opening position pressure.

The on-off pneumatic controller applies either full 15 pounds air pressure or 3 pounds pressure, with no intermediate, on the control valving when the wet or dry bulb temperature varies a small amount from the set point. The modulating (proportional) control applies the 3-15 pound air signal with intermediate values on the control valving.

The dry bulb pneumatic controller applies a 3-15 pound air signal on the heat valve when the dry bulb temperature varies a small amount.

The wet bulb pneumatic controller utilizes a dead zone across the set point. Assuming an instrument range of 50-200°F, and a set point at 140°, the spray control valve will go from open to closed position before 140°F is reached. Then, while the temperature rises from 140°F the vent operator will move from the closed to the fully open position. This action of the wet and dry bulb controllers takes place in accordance with the type of pneumatic control being used.

Thermocouple Actuated System. The control system previously described is normally thought of as the economy type of package. Beyond this is a concept of control which utilizes a thermocouple actuation as opposed to the vapor actuated thermal system. The principle of the thermocouple (thermoelectricity) is the basis for this type of control. When two dissimilar metals are welded together at one end and this junction is heated, a voltage is developed on the free ends proportional to the temperature difference between the welded and free ends.

In actual practice a double conductor with insulation overall is used. The two free ends are connected to a millivoltmeter or potentiometer which measures the emf (electro-motive-force) created and indicates or records this emf in terms of temperature. Instruments of this type are known as Thermocouple Pyrometers. Specifically, the thermocouple type of control is applied to the dry kiln in the same manner as the filled system, utilizing the same valving. The bulbs are replaced with thermocouples and the instrumentation to which they are connected are Thermocouple Pyrometer Controllers.

Advantage of this system of temperature sensing is that high accuracy is obtained plus the added advantage that thermocouples feel the temperature change much more rapidly. From an operating standpoint, this inexpensive wire is much simpler to replace, does not require recalibration when replaced, which means it is less expensive to maintain a spare unit.

The Thermocouple Pyrometer is available with either straight electric control of the on-off or modulating type utilizing electrically operated valves or straight pneumatic control utilizing the familiar pneumatic operated valves.

These controllers can also be electrically connected to an electric floating control actuated pneumatic relay thus creating an electro-pneumatic system. A high-low contact action with an adjustable neutral zone in the controller is utilized in a circuit with the floating control motor.

This system functions as follows: When the kiln temperature drops below the neutral zone, the instrument low contact closes, thereby energizing the open winding of the motor causing the motor to run toward the open position as long as the contact remains closed. On the other hand, when the kiln temperature rises above the neutral zone, the instrument high contact closes so that the motor moves to the closed direction, until the kiln temperature is within the neutral zone at which time neither instrument contact is closed and the motor remains in the last position attained at the time the variable entered the neutral zone. Thus connecting this electric floating control to a pneumatic relay operating through its range will deliver the standard 3-15 pounds signal which is utilized by the valving in the kiln in much the same manner as the thermal system type of control.

Looking to the future, we can foresee areas of more sophisticated controls including automatic and remote types working into the automation of the lumber industry. Program control of the dry kilns is an example of this. Frequently it is desired to raise the wet and dry bulb temperature at a controlled rate, to hold it at a predetermined level for a definite period, and possibly decrease it at a controlled rate, all automatically.

Other areas such as controlling from internal board temperatures, controlled drying by weight, all of which can be controlled remotely by the use of telemetered intelligence.

Prefab Aluminum Kilns Cut Drying Time 33%

High insulation value and efficient heating system speed lumber seasoning at Burney Lumber Sales Co. of California at Truckee, Calif.

Two standard prefabricated aluminum dry kilns dry 100,000 feet of 6/4 white fir dimension in 54 to 60 hours compared to 72 to 84 hours under the former operation at Burney Lumber Sales.

Among the factors contributing to stepped-up drying production is the tightness of the aluminum-clad kiln buildings. The sidewall panels are equivalent in insulating value of 27 inches of common brick and to 41 inches of brick on the roof, according to Harry Nevison, installation engineer for Standard.

The kilns are provided with insulated aluminum doors at both ends. An easily accessible control room is located at the side of kiln No. 1, fitted with all necessary piping, controls, control valves and instrument panels, including the Foxboro temperature and humidity recorder controller.

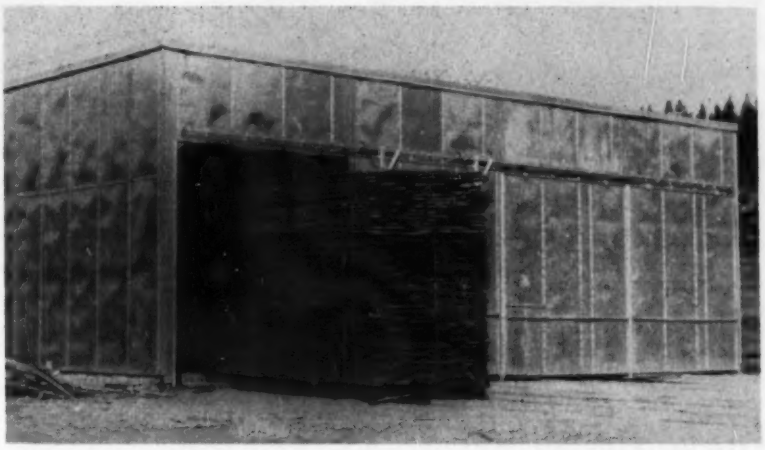
Heating system efficiency is maintained by the use of copper tubing and aluminum fins in both the upper heating coil and the re-heater or booster coil in between.

The heating coils are separately trapped and are controlled independently of each other by a Foxboro Multizone recorder that maintains exact, uniform temperature throughout the kiln. The same instrument also controls the humidity and operates the steam spray humidifiers independently of the automatic control of the ventilating dampers, which are closed when steam spray is on. This conserves steam.

Circulation well above 430 feet per minute across the loads is effected by 11 2-hp, 4-bladed, 42-inch fans connected directly to individual motors. Since the kiln is able to get up to temperature rapidly and there is more than adequate ventilation, drying time is decreased as the capacity of the kiln is increased.

The fan motors are Class H insulated for operation at temperatures up to 385 degrees Fahrenheit and are not affected by the high humidity conditions that prevail inside the kiln.

Minimum maintenance is required for the buildings: no painting is needed on the aluminum walls, the hinged aluminum ceiling baffle that rests on the load during the drying cycle, or the bonderized steel fan wall and housing around each fan inside the kiln. The false ceiling is made of a bonderized enamel deck which also needs no painting.



PORTABLE DRY KILN of Standard Kiln Co. at Truckee is easy to maintain due to the wide use of aluminum on both the inside and exterior, say company men.

The aluminum insulated panels of the kiln building are attached to the steel building frame with aluminum extrusions, making it easy to dismantle the kilns if circumstances should require moving them to another location.

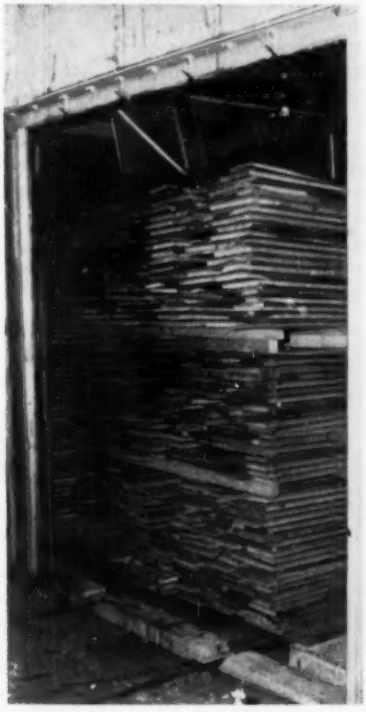
The recently installed kilns are 28 feet, 9 inches wide and 68 feet, 10 inches long, over-all. They are 20 feet high.

The buildings were furnished complete with all equipment, from the foundation up by Irvington Machine Works, Portland, Ore., western representative for Standard Dry Kiln Co.

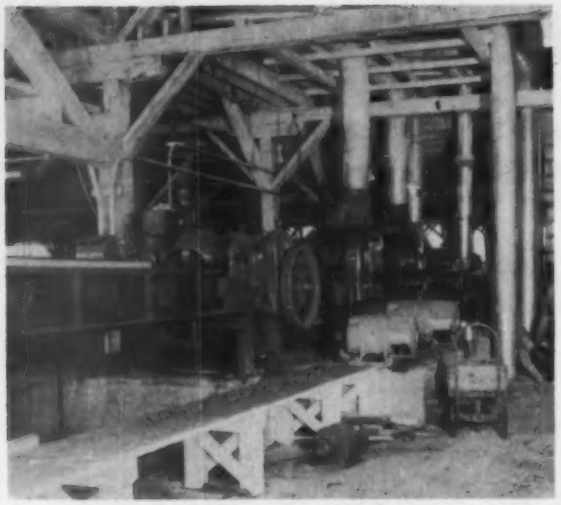
Lumber is loaded into the kilns in packages 52 inches wide and 48 inches high, loaded two wide and three high on kiln trucks. Total capacity of the two kilns is approximately 100,000 feet.

Burney Lumber is currently on a one-shift basis, producing 80,000 feet of lumber per shift at the sawmill. Output is mostly white fir with some ponderosa and sugar pine. The plant produces a wide range of dimension and boards in shop and upper grades.

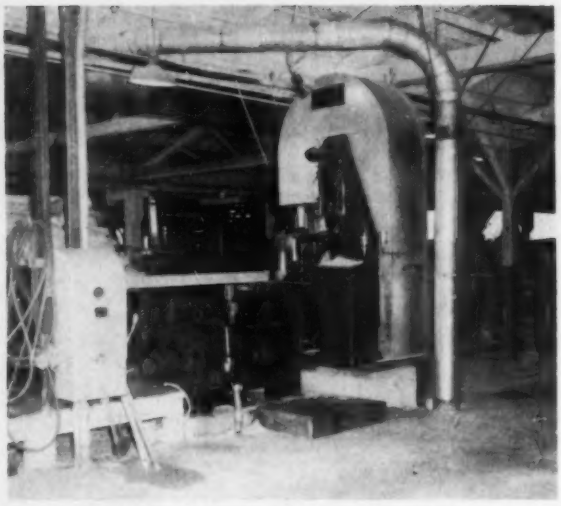
The sawmill and planing mill were constructed in 1852 at Marysville and moved in 1956 to Truckee, Calif. Until the new kilns were installed, lumber to be dried was sent to the company's kilns at Marysville.



Aluminum baffle rests on the top of a load in Standard dry kiln.



Kiln dried lumber is surfaced on Stetson-Ross 6-14-D1 planer with Stetson-Ross 6-14-DH6 blanker, top and bottom. Matcher is double-profile equipped. The 16-knife unit is served by an American elevator.



Vertical band resaw is a Mershon unit. It is served by an American tilt lift. It resaws 2x4 vertical grain, bevel siding and resaws for grade. The short Link-Belt sorting chain is powered by a GE-powered Pacific drive.

High Production Surfacing accomplished with in-line equipment

and streamlined sorting systems in rebuilt and modernized planing mill.

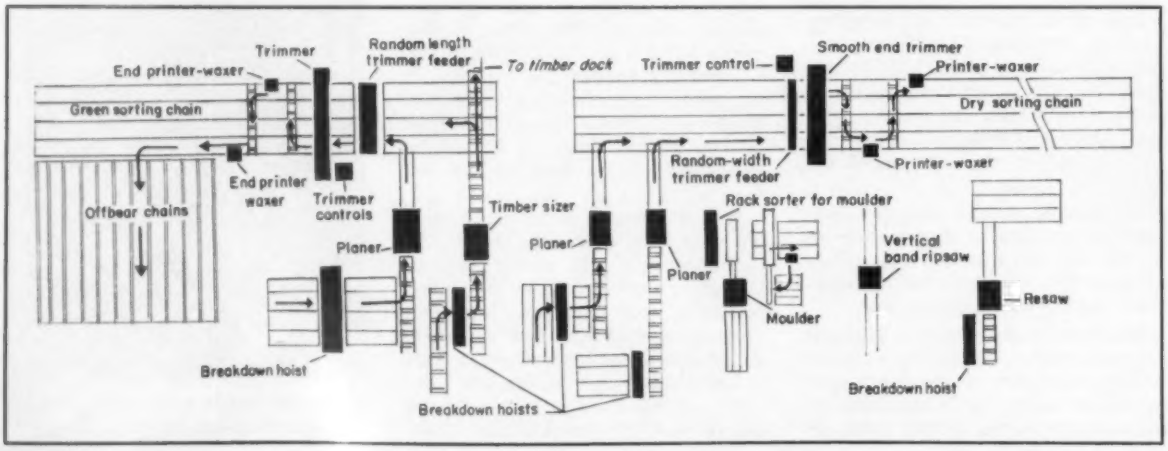
Added equipment and equipment reshuffling into a redesigned flow system have provided a high-production surfacing operation producing a better product for Medford Corp., Medford, Ore., in their planing mill.

The firm's planning has resulted in a flexible flow-line enabling a 31-man crew to handle the surfacing of the sawmill's 340,000 board foot daily producing. The new layout enabled a 25% reduction in the crew.

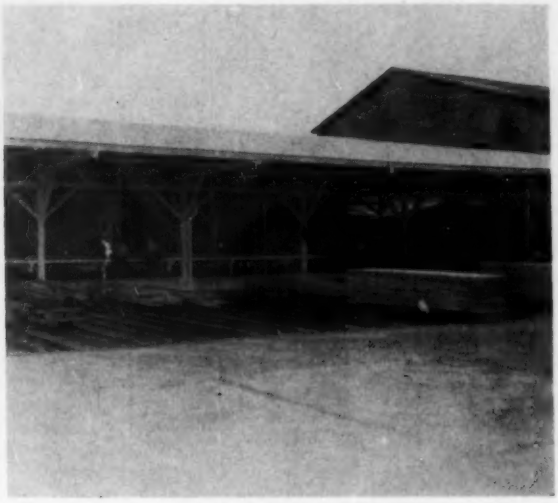
The former operation required three machines to do the primary surfacing. These served a single sorting system. As re-designed, the plant now has two surfacing lines—one each for kiln-dry and green lumber. About half the firm's output is kiln-dried.

The two main production units now in use, each capable of a 1,000 lineal-foot per minute operation, are a Stetson-Ross 25-inch planer surfacing the dried stock, and a Stetson-Ross 15-inch machine surfacing green lumber. Both are backed by alternate units—equipment on hand from the previous operation. The machines are mounted beside the main production surfacers and serve the same chains. They increase production when necessary and provide the rapid versatility so necessary in a high production planing mill.

The timber sizer backing the 15-inch planer is a 16x20 Stetson-Ross 4A4 8-knife unit with belt-driven top and bottom cylinders and motorized side heads. When used as a conven-



Green lumber is surfaced on Stetson-Ross 6-14-D1 15-inch planer with double profile to run all types of patterns. The planer is equipped with hogging head. Stetson-Ross tilting lift serves feed end of planer.



Green sorting chain is Rex chain-driven by U. S. Varidrive. Rex floor chains accommodate 19 sorts on carrier blocks. Chain is 100 feet long. Carriers move completed stacks to storage or shipping.

tional timber sizer, the timbers offbear onto a rollcase crossing over the sorting chain to the loading dock. When lumber is run on the unit, a tipple is raised which allows lumber to be conveyed directly onto the chain serving the green trimmer.

The Stetson-Ross 6-10-A1 backing the 25-inch dry planer, similarly feeds directly onto the chain serving the dry trimmer.

Belt conveyors automatically pick up carrier blocks from under the breakdown hoists at the head ends of the production units and convey them to the head ends of the sorting chains for easy dispersal among the sorting stations.

A Yates vertical band ripsaw is used for upgrading as well as for splitting double-pattern moulding. A circular ripsaw salvages edgings from the sawmill. The ripsaws, moulder and resaw have their own offbearing and, where required, sorting systems.

Interchangeable yokes are used on the planer heads for rapid setup changes. Interchangeable motors are also used on the two main planers.

The general layout of the planing mill revision and modernization was designed by Medford Corp. personnel coordinated by General Manager B. L. Nutting, with Thompson & Holmberg, Portland, Ore., consultants, assisting with the final planning.

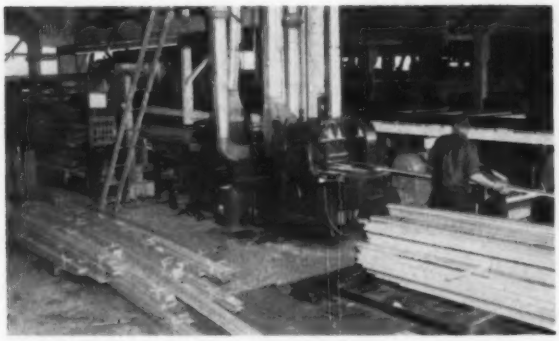
Electronic devices which simplify operation of the smooth end trimmer at Medford Corp. are explained on the following pages.

EQUIPMENT

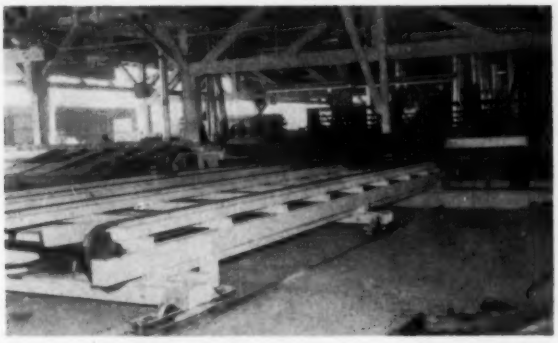
STETSON-ROSS planers; STETSON-ROSS and AMERICAN breakdown hoists; IRVINGTON trimmer and random-length feeder; GENERAL ELECTRIC and REDCO trimmer memory controls; STETSON-ROSS trimmer; IRVINGTON and STETSON-ROSS end branders and waxers; UNION OIL COMPANY ARISTOWAX end-wax.

STETSON-ROSS timber sizer; STETSON-ROSS moulder; YATES vertical band ripsaw; PORTLAND IRON WORKS random width star trimmer feeder; MERSHON vertical resaw driven by WESTINGHOUSE motor; REEVES, PACIFIC and PRESCOTT drives; GENERAL ELECTRIC, ALLIS-CHALMERS and U. S. motors; LINK-BELT and CHAIN BELT chain; GENERAL ELECTRIC and MICRO SWITCH limit switches.

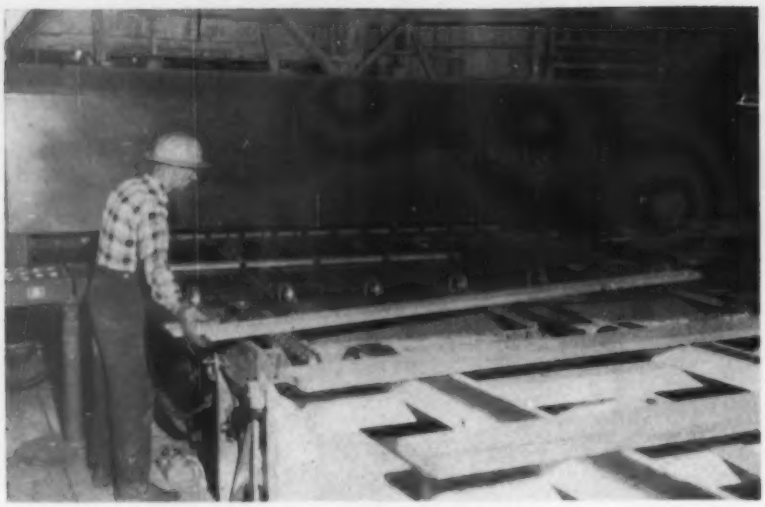
WESTERN PINE LITE grading light; DODGE TIMKEN bearings; GE AMPHLIDYNE drive on planers; HANCHETT, WOODS and STETSON-ROSS grinders; HANCHETT stretcher rolls; HOE bandsaws; SIMONDS hollow ground smooth end trimmer saws; JONES & ORTH, OK KNIFE, and PHILBRICK knives; ANDERSON blower system.



Moulder is versatile. The Stetson-Ross 126-B unit can be used for both moulding and pattern stock. When running moulding, a rack-sorter wheels into place at offbear end of unit. Sorters use hula saws for trimming.



Sorting chain for moulder wheels up on dry kiln truck wheels under hula saws to offbear end of moulder when pattern stock is run. When trimming is needed, grader pulls for swede puller to merry-go-round, left, back to hula saws.

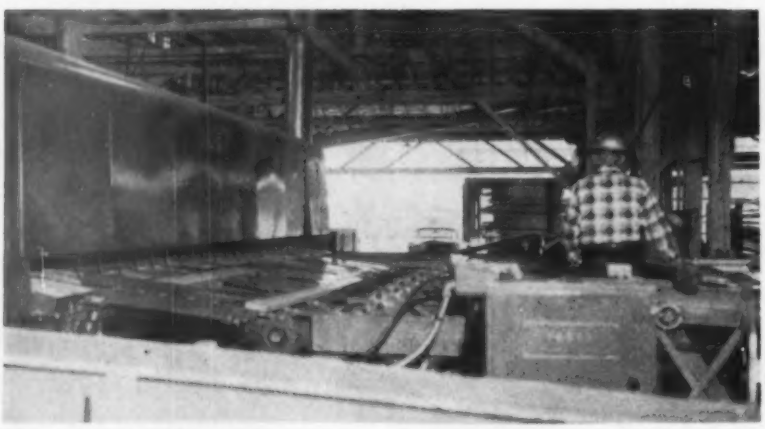


Trimmerman actuates memory control device for saws at Redco control panel at his back. Memory allows him entire lug space to pre-set for selective trimming. The Stetson-Ross trimmer trims plants output of dry, planed lumber.

Interior view of Redco control panel shows plug-in standard units employed in circuitry. Bank of lights below plug-in shows circuit status. Printed circuits are transistorized.

Electronic Memories on Trimmer provide fast, accurate operation through retention of instruction fed by trimmerman.

Memory Control of the trimmers in the modernized Medford Corporation planing mill at Medford, Ore., allows the trimmerman additional time to properly feed the boards and operate trim controls. It also eliminates the critical timing requirements of dropping a saw to catch a board without nicking the previous board on a fast-moving feed table. A separate system is used on each of the two trimmers where a "stage" system of information storage moves the information from one "stage" to the next as the board moves forward toward the saws. Both memory devices employ retention devices which cause the saws to remain in cutting position if they will be needed for the following board, thus eliminating wear and tear on the actuating mechanisms.



Star feeder from Portland Iron Works automatically places random-width boards on lugs for even spacing. Free wheeling wheels mounted on arms place boards ahead of lugs. Redco memory device is in cabinet in right foreground.

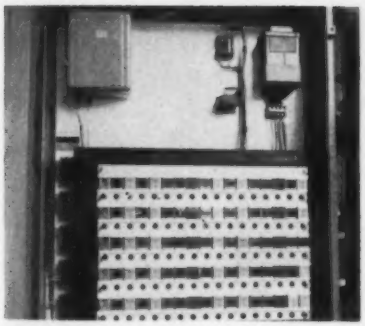
Redco system employed with the Stetson-Ross one-foot multiple trimmer is trade-named the "Transtat" system. The heart of the controls is a bi-stable flip-flop transistor circuit which is turned on when the operator presses the button corresponding to the saw which will eventually be dropped to trim the board.

In the input stage of the control, a flip-flop circuit is wired for each saw and any number of these circuits can be turned on by the operator as the board is passing in front of him.

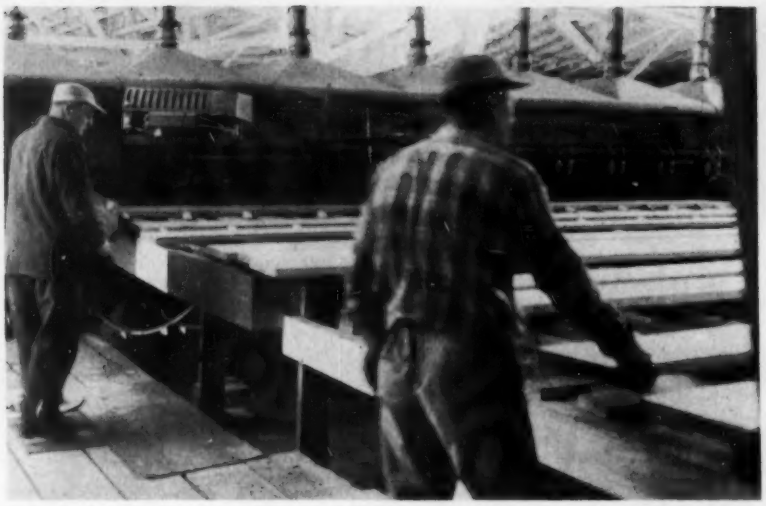
As the board leaves the selection area, a timer consisting of a cam-operated Micro Switch, actuated momentarily, once per lug, sends a signal to the control system which transfers the signal of those transistor circuits to the input stage of the corresponding transistors in a storage bank.

At the same time the sawing information signal is transferred from the input bank to the storage bank, the input bank is re-set by a second signal to clear all the flip-flop circuits to prepare them for receiving information for sawing the next board.

The same sequence is followed with each board and the information on the first board is successively transferred



General Electric control employs capsulated circuit units mounted on pre-wired panel for easy installation and checking. Lamps show electrical operation as information proceeds.



Trimmerman, left, sets saw at control console behind him. He makes set while board is in white decision zone marked on frame. Micro Switches ahead of saws automatically assure proper trim. Trimmer is Irvington smooth-end unit.

forward from one storage bank to the next, corresponding to the number of lugs separating the selection area from the saws.

As the first board reaches the sawing area, the information is transferred to the output bank which signals the saw solenoids to drop the proper saws for the proper interval during the passage of that board.

As the board enters the sawing area, the Micro Switches aligned in front of each saw determine the maximum length of the board and signal the output transistor bank to add the additional random trim information to allow the board to be trimmed to the nearest one or two-foot increment—as set into the controls.

General Electric static controls provide the memory system for the Irvington smooth-end trimmer. The operator sets his saws in the control zone by push button with the signals going to the storage units of the controls, later moving from zone to zone into the action bank as the board progresses through the saws.

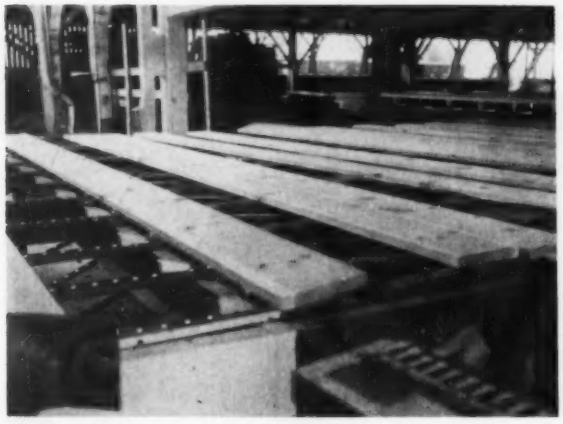
Storage and controlling is by plug-in circuits employing a coil wound on a magnetic core, germanium rectifiers, capacitors and resistors. The units give the effective action of a series of relays, but without moving parts. All action is electronic.

In case of power failure, the magnetic core provides the continuity to allow the process to continue from the point where it stopped when power is restored.

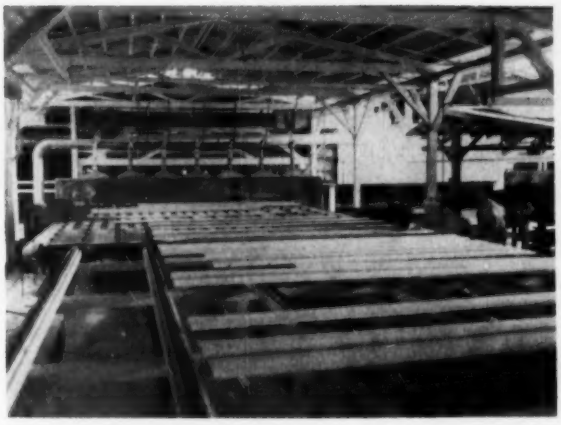
Simply, the system converts a combination of inputs into a single output to provide the stored decisions as to where the board should be trimmed when it reaches the saws.

Adjustable vane-type GE limit switches mounted on the lug-chain drive shaft trip the circuits for transfer of information from one stage to the next and also trip the release circuits to release the saws after the cut is made.

The plug-in control units are permanently sealed and enclosed in an aluminum housing for maximum protection. Monitor lights on the individual logic units indicate whether the circuit is operating for trouble-shooting.



Irvington feeder automatically feeds random-length boards singly to trimmer. Stops on feeder are set for width of lumber being trimmed. Jump chain pivots to deliver board.

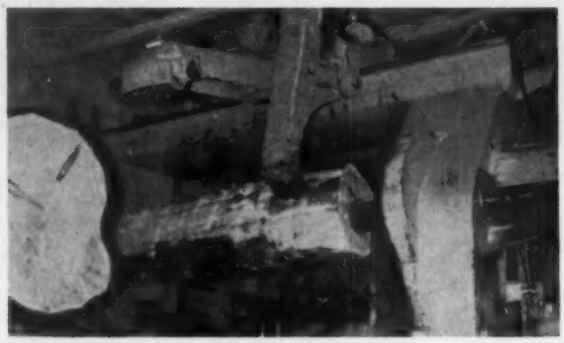


Double end printer-waxer at off end of trimmer is Irvington unit. Rolls carry boards across to left printer-waxer, second set of rolls carry them on over to process other end.

New Veneer Plant produces 300 million square feet annually for Cascades Plywood Corp. at Reedsport, Ore. Output of plant feeds the firm's plywood plant at Lebanon. Here is a picture story of the operation.

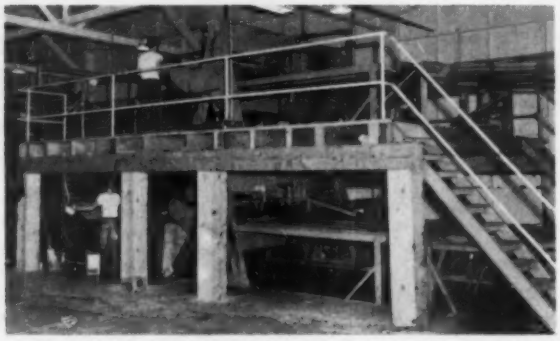
The new Cascades Veneer plant at Reedsport, Ore., is one of the most modern plants in the Douglas fir region. It employs some new innovations and equipment representing latest developments by both equipment manufacturers and plywood operators. The plant steps forward the pace of better controls, equipment and efficiency of operation. It emphasises again the need of all plants keeping ahead of obsolenscence.

3 Blocks moving on log haul into plant are automatically stopped upon hitting a stop at end of haul. Barkerman actuates kicker to lease block onto barker deck and haul resumes. L-M shaker screen above takes sawdust from the pond water pumped from pond saw.

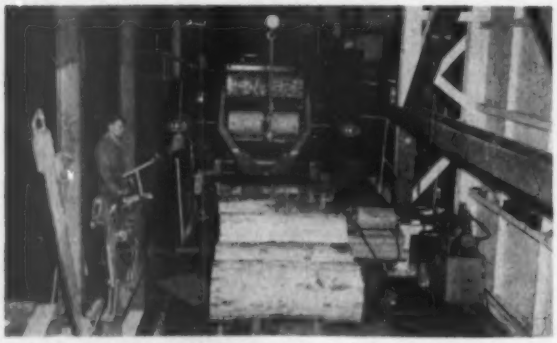


4 Drain barker has hydraulic lifts for moving blocks into position. Blocks offbear onto chain serving deck. Chain automatically stops when block reaches end, waits for operator to actuate kicker to move block onto deck.

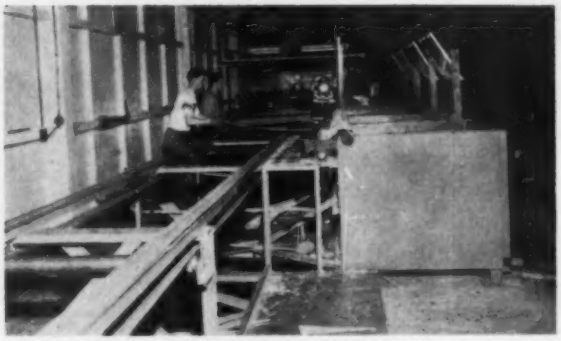
7 The tray systems are all-steel unit from Prentice. The main 6-tray system at right is 150 feet long. The 4-tray system is located at the left. Return trays under both systems return refuse to the head end burner conveyor.



8 The double deck clippers each take the output of three trays. Semi-automatic clippers serve the 100-foot green chain. They are Victor Units. Drain carts receive the veneer as it is pulled off the green chain.



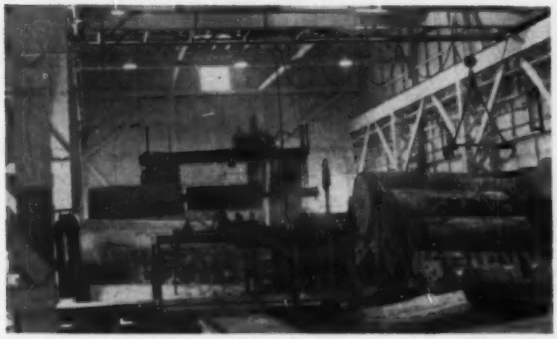
11 Nicholson hydraulic charger picks up block from the pre-centerer, holding it ready to place in the Coe core lathe. The core lathe employs Reliance drive, Redco tipple and tray control and Drain air-breaker.



12 Sorting of core veneer is done on a 5-foot sorting chain. Veneer comes from the Victor semi-automatic clipper, at the rear. Veneer is pulled by MJM Manufacturing swede pullers. Carts are used to hold veneering being removed.

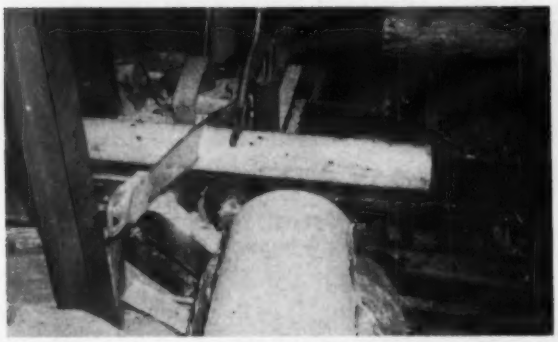
1 Plant site is at outlet of bay of Umpqua River. Ritter building is 480 feet long, 60 feet wide in sorting end, 46 feet wide at head end. Siding is ⅝-inch, full length company-scarfed panels. Roofing is T&G plywood panels covered with paper roofing.

2 Lily pads are conveyed to the burner on a Portland chain conveyor. An L-M pond saw with L-M pond cleaner is used in bay area.

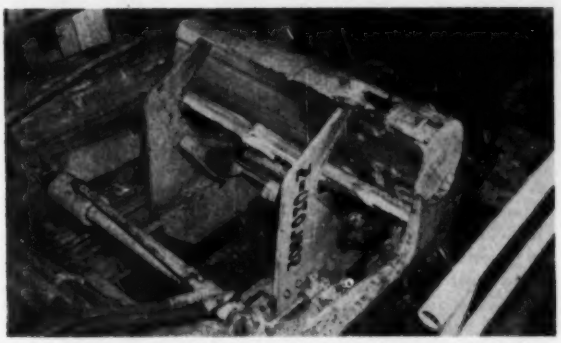


5 Decking between barker and lathe is accomplished by Ederer 5-ton overhead crane. Core blocks are bucked with chain saw at center and fed to the core lathe on chains in the foreground. Drain barker shows in background.

6 Prentice hydraulic charger serves Jackson lathe which is driven by Skeen 150-hp drive. Lathe and trays are synchronized by Redco controls. Drain air breaker is actuated by Micro Switches at the far end of the tray system.



9 Peeled cores from main lathe pass under L-M deck saw to hydraulic stop positioned to allow the cut for 4-foot core lathe. After cut, stop drops and block moves over to kicker which kicks it onto a short live deck.



10 Per-centerer is new design by Nicholson. It receives blocks from live deck at top. Blocks drop onto cradle at bottom. Combination of cradle action and side jaws position block for centering. Sidearms insure lateral centering.

13 Yale fork lift picks up veneer for rail shipment to Cascades plywood plant at Lebanon, Ore. Production is entirely Douglas fir. Don Baxter is plant manager of the new plant. Bill Andrews serves as engineer.

EQUIPMENT

L-M 7-foot pondsaw with L-M pond cleaner; DRAIN MACHINERY & SUPPLY barker; EDERER 5-ton overhead crane; AUTOTRON light sources for lathe pre-centerer; PRENTICE charger; REDCO automatic tipple with DRAIN air breaker; JACKSON 110x72-inch lathe with SKEEN 150-hp drive; REDCO tray controls; PRENTICE trays driven by GE 10-hp motors employing AIRFLEX clutches.

MICRO SWITCHES actuating breaker and clutches; two VICTOR clippers; DRAIN carts; VICTOR fishtail saw; YALE forklifts; SIGNODE and ACME strapping; PORTLAND CHAIN log haul and lilypad chain; ESCO burner conveyor chain.

RITTER Roof Structures building; GARDNER-DENVER air compressor; GE power control board; CAPITAL knife grinder.

CORE SIDE. L-M decksaw; NICHOLSON hydraulic pre-centerer and charger with RACINE 4FA pump powered by GE 10-hp motor; COE 66-inch core lathe with RELIANCE drive; DRAIN air breaker; REDCO tipple and tray controls; RELIANCE tray drive; VICTOR semi-automatic clipper; MJM swede pullers and carts.

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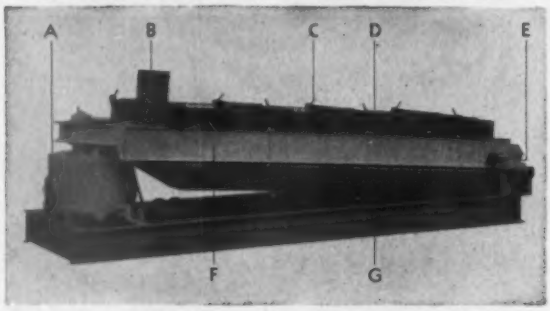

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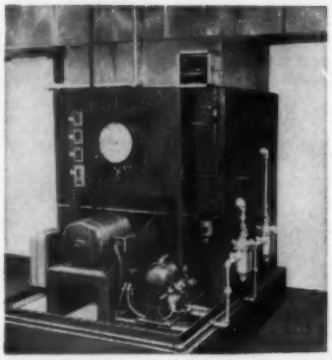

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Component Show Home Combines Plywood Units, Lu-Re-Co Panels and Trusses

A research - demonstration house which is called a "showcase of building components" is under construction at Champaign, Ill. The house, which will incorporate a number of new ideas in component construction, is a cooperative project developed by Douglas Fir Plywood Association, Lumber Dealers Research Council, and Plywood Fabricators Service, Inc.

The 2,000 square foot house will be built with rigid frame bents, fir plywood stressed skin panels, plywood box beams, plywood cathedral beams, a simplified box girder floor system, Lu-Re-Co wall panels, and Lu-Re-Co trusses.

According to Ray Harrell, executive vice president and research director of Lu-Re-Co, the house is designed to show how Lu-Re-Co panels and trusses can be combined with other components.

"This house will be an unprecedented marriage of many types of 'building parts.' The new components will add more flexibility to Lu-Re-Co's system of modular construction than we've ever offered before. For that reason, it should be more attractive to builders and it will open much broader markets to our dealers," says Harrell.

•

DFPA Appoints Hess Technical Director

Architectural engineer John M. Hess has been named technical director of the Douglas Fir Plywood Association. He succeeds Nelson S. Perkins who was DFPA technical director for 20 years before being named special assistant to the managing director this summer.

JOHN M. HESS

Mr. Hess now heads a department with five laboratories, 90 engineers, chemists, technical writers, wood technologists and quality supervisors. The department will spend $900,000 this year for plywood quality control, product research, and applied research on behalf of DFPA member mills.

Since joining DFPA Mr. Hess has served as field promotion manager in the Chicago region from 1951 to 1955, has worked in the technical department and has been assistant technical director for three years.

Harry Russell Promoted By U. S. Plywood

The new post of assistant manager of its Oregon division has been established by U. S. Plywood and Harry Russell has been named to fill the position. Marshall Leeper, vice-president and Oregon general manager, says the new post results from expanded production goals in the firm's fir plywood manufacturing operations.

HARRY RUSSELL

Mr. Russell served for 17 years with Harbor Plywood at Hoquiam, Wash. In 1948 he helped form Shasta Plywood, Inc., Redding, Calif., which subsequently became U. S. Plywood's chief plywood and particle board operation.

•

U. S. Plywood Tells Expansion Plans

The firm will spend $10 million during this fiscal year for the following:

- A fir plywood plant at Shasta, Calif., to supplement pine plywood facilities there.
- A plywood plant at Gold Beach, Ore., as an addition to the present veneer plant.
- New facilities at Algoma, Wis., for manufacturing doors.
- New board plant, So. Boston, Va.

•

New G-P Warehouse

Georgia - Pacific Corp. has announced plans to build a new sales office and warehouse in Akron, Ohio, to be completed early in 1960. T. P. Ryan, G-P midwest regional manager, says the warehouse inventory will include all standard grades and sizes of plywood, including a complete line of G-P hardwood plywood and hardboard.

•

• The Plywood Manufacturers Association of British Columbia has set up a separate department to handle requests from lumber dealers for consumer literature concerning fir plywood. The association also has developed a catalogue of all available literature which has been mailed to more than 6500 lumber dealers.

Another PLUS value...

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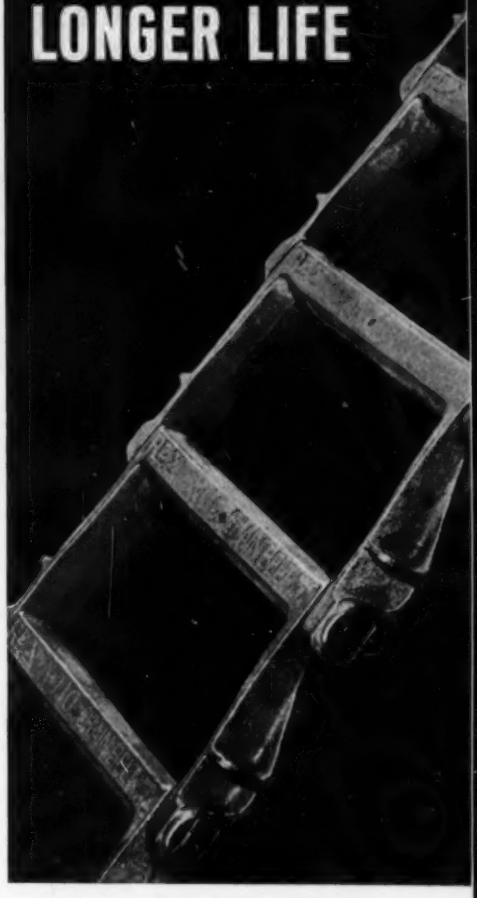
LONGER LIFE



25% greater strength than the best quality malleable iron, greater resistance to corrosion, abrasion and severe pounding—this is why Rex Z-Metal Chains are giving up to four times longer service in mill after mill.

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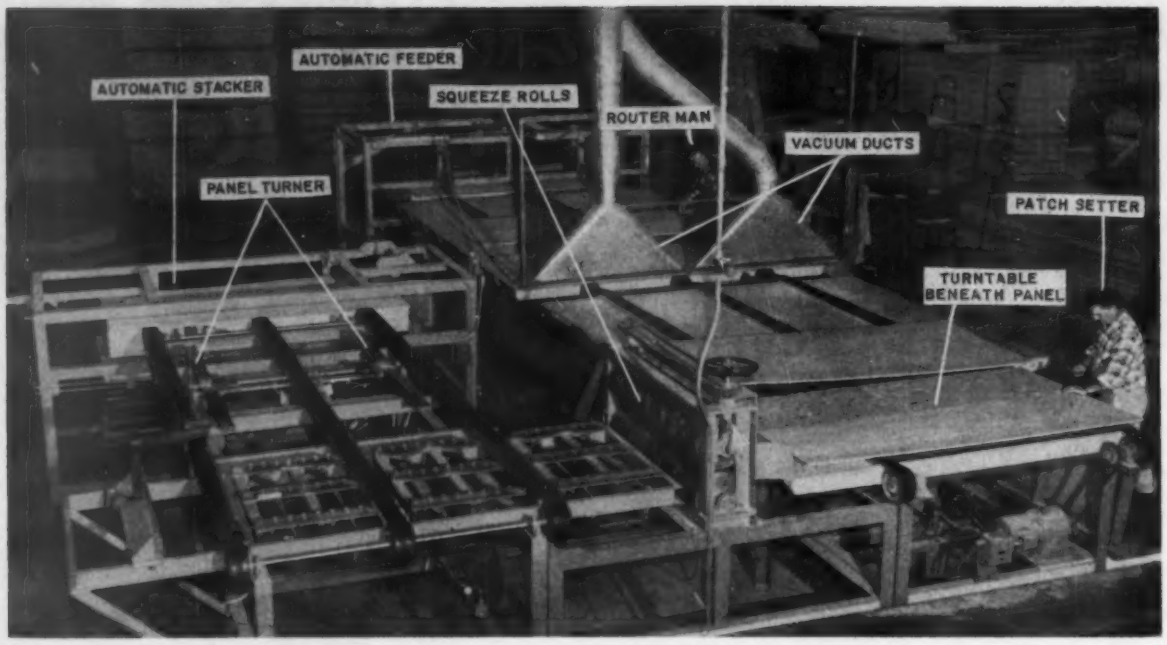


Panel Patching System Doubles Production

Two men handle operation at Aberdeen Plywood Corp., Aberdeen, Wash.

Of the two men on the Prentice-Lane conveyorized system, one is the router and the other the patcher. Neither man is required to lift a single panel. The speed of the operation comes from the fact that each man has only a specific phase of patching to do.

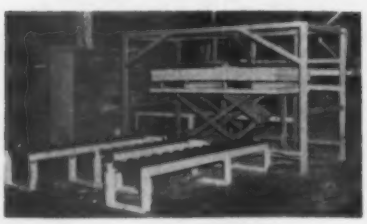
In operation, a stack of panels is deposited by lift truck on gravity feed rollers that allow it to roll upon a scissors lift in the feeder. The feeder is controlled by the router man. As the stack is fed through a panel at a time, the feeder is automatically recharged with a new stack from the gravity rolls. A hydraulic, foot-pedal controlled, circular lift turntable in the center of the routing table permits easy turning end-for-end of the panel for ease in patching.

After routing and shim-sawing, moving belts convey the panel under hoods connected to vacuum ducts which suck up loose chips and sawdust. The second man on the line then fits patches and shims and glues them in. A second turntable is also at this station to permit easy access to both ends of the panels. Completed panels are fed from the turntable into squeeze rollers which compress the patches firmly in place. A blower head preceding the rollers blows off chips and foreign material.

The panel is discharged from the rollers upon a transfer table and conveyed to the automatic stacker at the end of the line. The transfer table contains a panel-turning mechanism. When making a run of panels that are to be patched both sides, this mechanism turns each panel over so that it stacks with the unpatched face up.

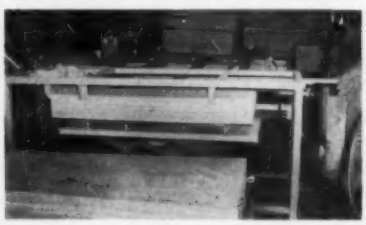
The final stack is automatically discharged from the stacker upon a roller table for fork truck pick-up. A stack of turned panels is returned to the feeder for processing the second face. Completed panels go to sanders.

The patching system is adaptable to any flow system arrangement giving it flexibility to fit into any mill layout. The system is manufactured by E. V. Prentice Co. of Portland, Ore.

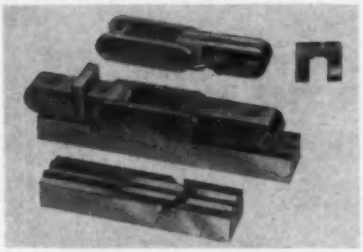


AUTOMATIC FEED of panel patching system showing gravity rolls in foreground. Scissors lift rises automatically amount of one panel-thickness as each panel is fed to system. When empty it descends automatically and receives next stack.

AUTOMATIC STACKER at end of the system. Flexibility in positioning the transfer table following the squeeze rollers permits adaptability of the patching system to available space.



MACHINERY AND EQUIPMENT



Double End Material Control Improved

A new Double-Vee feed chain permits tolerances to hundredths of an inch on the No. 600 double cut-off saw and No. 700 double end tenoner of Mereen-Johnson Machine Co., Minneapolis, Minn.

The chain seats in a corresponding Double-Vee track to eliminate side play and permit more accurate cutting of materials. Patented feed dogs snap on or off any link of the chain. Any lug fits any link.

•

Strapping Sealer Makes Seal Strong as Strap

USS Model 66 features a special locking handle and a crimping action seal which United States Steel Corp. says will make a seal as strong as the strapping.

The unit is designed for use with 2x.050-inch flat steel strapping. Three-foot handles operate parallel to the strapping. A locking device in the handle of the 16-pound machine insures that a sealing operation, once started, must be completed before it can be removed from the seal, thus eliminating any chance of low seal efficiency.

Deck Space Expanded On White Truck

The one-man cab takes up only 5.6% of the over-all area on a truck engineered and built by the White Motor Co., Cleveland, Ohio, with special refinements by Mayer Pollock Co., Pottstown, Pa.

The truck has more than 195 square feet of flatbed deck, including a 28½-foot length gained through extension of the deck alongside the cab. The wheelbase is 163½ inches.

The deck is 96 inches wide behind the cab and 62 inches wide alongside. The cab is only 32 inches wide and 57½ inches long. The cab tilts for easy access to the engine.

•

David Brown, Inc. Names Three Distributors

New distributors of David Brown, Inc., San Leandro, Calif., include Bearing Engineering & Sales Co., Inc., Salt Lake City, Utah, for Utah and adjacent areas of Idaho, Wyoming and Nevada; Montequma Bearing Co., Albuquerque, N. M., for New Mexico; and Industrial Electric Service Co., Arcata, Calif., for northern California.

Industrial Electric will handle David Brown gear products. The other firms will handle standard Radicon speed reducers, drives and Broadbent clutch couplings.

•

• Miller & Stern Co., division of Warren & Bailey Co., San Francisco, Calif., has been named a distributor for Atkins Saw division, Borg-Warner Corp., Indianapolis, Ind.

SHOWN HERE WITH THE NEW HANCHETT A-220 bandsaw sharpener are Ed Darling, left, manager of Hanchett's Portland factory branch, and Hugh Miller, factory representative. This is one of the new machines in Hanchett's Series "A" sharpeners, available in three sizes from the Portland branch: A-220, A-230 and A-240.

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SIMPLIFY DRIVE SELECTION

Here's how to save time and money in your chain drive selection. Rex Stock Chain Drives, ranging from ½ to 100 h.p....driver sprocket r.p.m. of from 5 to 2000...offer you your most economical selection. They cover both Rex Roller Chains and Rex Chabelco Steel Chains with necessary sprocket selections. To save you time in selection, the Rex Stock Drive Selection Bulletin shows you how to select the right drive in 4 easy steps. For your copy, see your Rex Distributor or mail the coupon.

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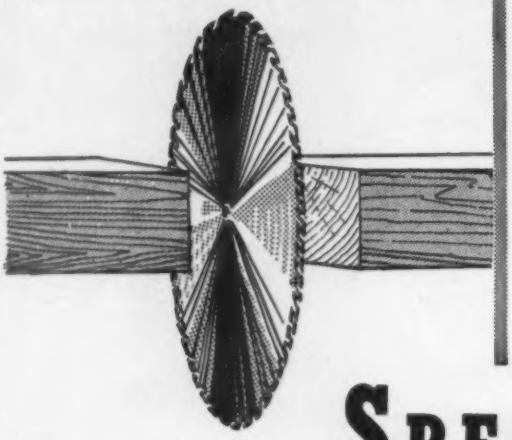

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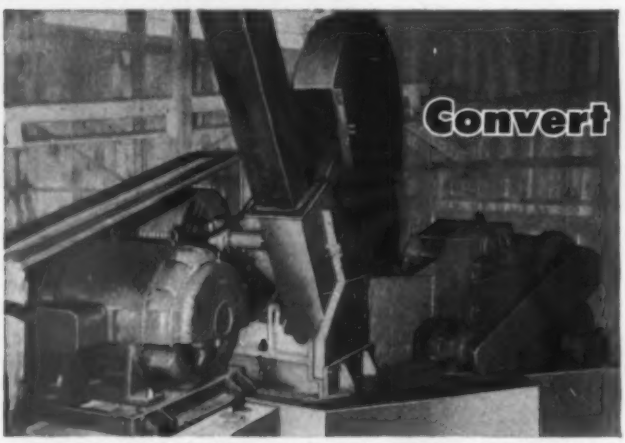

Carthage 60" Slab Chipper with horizontal feed. A five knife machine furnished with or without power feed and with gravity or blowing discharge. Capacity approximately 10 cords per hour. A companion chipper to our popular 39" horizontal slab chipper.

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Slabs, edgings, rounds and other waste wood are fast becoming an important source of chips for pulp mills — an important source of needed profit for hundreds of sawmills.

Cash in! There's a Carthage waste-wood chipper (size range 39" to 64") exactly suited to your requirements. Don't miss this big extra income.

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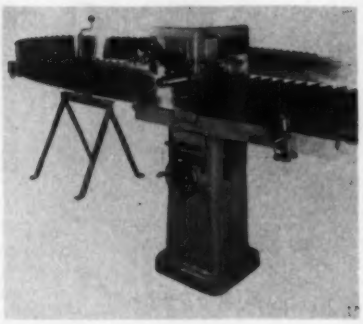
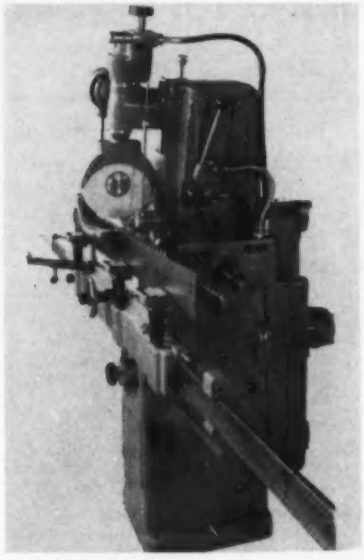
Automation in the Filing Room

By RICHARD KAISER,
Chief Engineer, Vollmer-Werke
Maschinenfabrik, G.m.b.H.

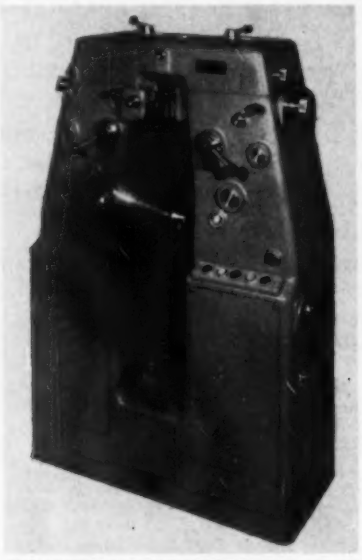
Lumber mills and finished wood products plants are using a greater number of modern automation machines to reduce operating costs and to increase production. The filing room is a vital part of this program. In too many instances this department is entirely overlooked in the plant modernization planning. Not to include the filing room in the over-all modernization plan is false economy because the use of poorly fitted saws will decrease mill output and increase operating costs. Production begins in the filing room. Here are some things that have been done with modern saw fitting machinery to make automation in the filing room a reality, to increase production and lower operating costs.



SWAGING AND SHAPING can also be done fully automatic by this machine. The operation of the swaging and shaping dies is on the same principle as used in hand swages and shapers. After the initial set-up has been made, the saw blade is automatically carried through the entire swaging process. Next the blade is lowered to the shaping dies and the shaping is completed automatically. Use of this machine gives precise and even swage throughout the entire length of the saw blade and eliminates time consuming and fatiguing hand work. Circular saw sharpening is now also fully automatic by the addition of automatic in-feed of the grinding wheel to the saw blade during the sharpening cycle.



THIS VOLLMER-WERKE gang saw sharpener is hydraulic and fully automatic and does not require the attention of an operator during the sharpening process. The use of this machine results in perfect tooth heights, depths and shapes of every tooth in the saw and every saw in the gang will be identical. To compensate for normal wear during the sharpening operation, the in-feed of the grinding wheel to the saw blade is variable in adjustment and also automatic. All machine adjustments are simple.



FOR SETTING VARIOUS TYPES of saw blades here is a Vollmer machine that electronically controls the degree and tolerance of set. The set tolerance afforded is + or — .0003" of the exact set desired. Normal tooth spring back and also oversetting by unequal hardness of saw teeth is electronically measured and corrected before the next tooth is brought into setting position. After initial set-up is made the entire setting operation for one or more saw blades is push button control.

Heavy Duty Flat Steel Strapping Cutter

The No. 550 Bulkbinder flat steel strapping cutter fits into the strapping operations as well as for use on strap removal. Features pointed out by A. J. Gerrard & Co., Melrose Park, Ill., include toggle arrangement to insure smooth over-all cutting action, new cutting angle to keep blade sharper longer, I-beam handles for more strength with less weight, and specially designed jaw angle for maximum cutting action with minimum effort.

Another PLUS value..

SEALS IN
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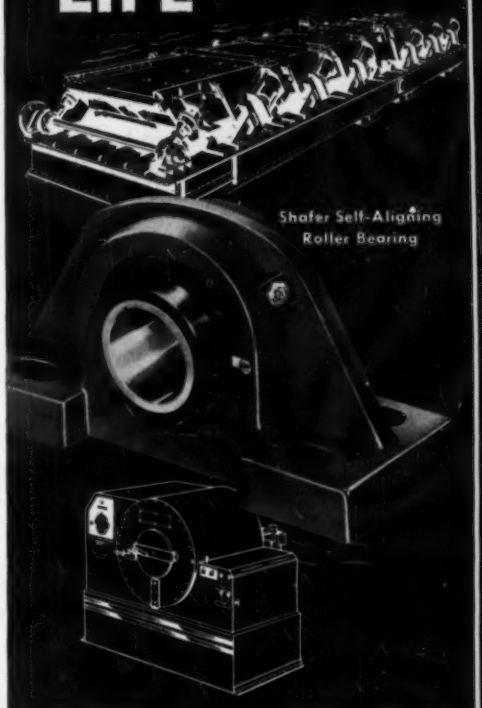
LIFE



When you choose a Shafer Bearing, you may be sure it has the *right* seal for *longest life* in your *specific* application.

Whatever the operating condition—whether it's fine abrasive dust from vibrating screens or caustic solutions from industrial washers—the *right* Shafer self-aligning seal is available to assure full bearing protection. Shafer has the industry's largest selection. Call your distributor or mail the coupon.

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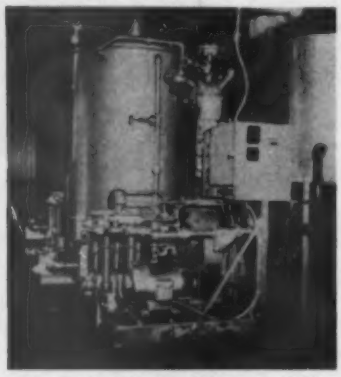
CLAYTON 160 H.P.—100 lbs. - 15 lbs., in a 13x15 ft. boiler house. Annual gas fuel cost $8000.00 LESS than fireman for former waste fuel boiler. Reduced heat-up time 1½ hrs., kiln time 15%. (name on request)



TWO CLAYTONS, 100 H.P. each—100 lbs. unattended, heat two kilns at a fuel cost of 1/6 the fuel and labor cost of former waste fuel boilers. (name on request)

CLAYTON 100 H.P., 100 lbs. UNATTENDED —heats 2 kilns of 40,000 feet holding capacity each, drying fir, white fir and pine in 15% less time on 14.3 gallons oil per 1000 board feet dried. (name on request)

CLAYTON 100 H.P., 100 lbs. UNATTENDED, heats 2 kilns of 60,000 feet holding capacity each, drying hemlock in 5½ hours less time, on 20 gallons fuel oil per 1000 board feet dried. (name on request)

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It's got to be a CLAYTON STEAM GENERATOR

to give modern kiln performance

Conventional old-fashioned "boilers" — even in modern dress — still give old-fashioned performance. But the truly modern controlled circulation CLAYTON STEAM GENERATOR gives you top efficiency in less space. Here's acceptance . . . 8 of the top ranking forest products industries in the Pacific Northwest have installed a total of 15 Claytons since January, 1958!

AMAZING KILN PERFORMANCE
Cuts heatup time as much as 50%. Cuts drying time up to 15%. Dries on as little as 2 lbs. steam.

GREAT FLEXIBILITY
Use the same boiler at either 100 lbs. or 15 lbs. You can use either pressure constantly. Or heat up on 100 lbs., hold on 15 lbs. Or run 100 lbs. day shift, hold at 15 lbs. on other shifts, weekends or holidays. (The Clayton is the **only** generator at 100 lbs. steam not requiring constant attendance by Oregon law.)

UNEQUALLED ECONOMY
White fir and pine require only 14.3 gals. of fuel oil per 1000 board feet; hemlock only 20 gals.

SIMPLIFIED UPKEEP
Steam sootblower — automatic blowdown — automatic water conditioning — no shutdown for inspection.

UNDIVIDED RESPONSIBILITY
Supplied, engineered, fired, instructed by the same firm. Also complete turnkey installation, parts and service.

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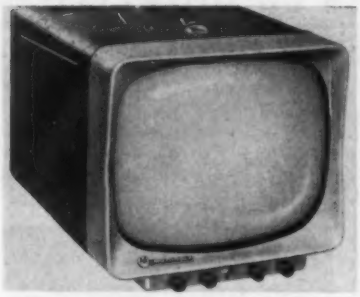
Motorola Offers Line of Closed Circuit TV Units



The line includes five closed circuit television cameras and two monitors.

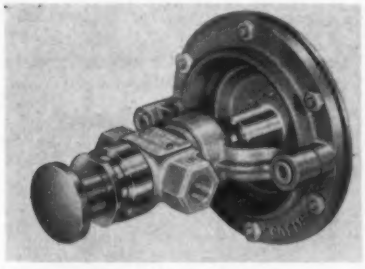
The basic Motorola general purpose camera, available in four versions, provides 550-600 lines horizontal resolution. Weighing 12 pounds and measuring 5½x7x11 inches, the camera puts out a one-volt video signal into a 75-ohm coaxial cable. The camera uses a standard 16 mm C lens mount and can accommodate a remote control four lens turret. Such remotely controlled functions as pan and tilt, iris control, focus, and zoom lens can also be added to the camera. The four versions of this unit provide: either automatic light compensation, or, manually controlled compensation; either random interlace, or, locked interlace.

The automatic models adjust by themselves for variations as much as 200 to one in light levels at the televised scene. This eliminates the need to make camera adjustments as lighting conditions change. On the automatic cameras, an on-off switch is the only operating control.

In the random interlace models, picture stability is assured through use of crystal controlled horizontal sweep circuits, power frequency controlled vertical sweep and exceptionally well shaped sync pulses. Fine vertical resolution is achieved with the locked interlace models through use of a binary counter.

The Motorola industrial monitor has a 14 inch screen. Ruggedly constructed, it provides high brightness and 600 line resolution. When used with the locked interlace cameras, it enables optimum interlace of horizontal and vertical fields.

A 21 inch receiver is the second Motorola monitor.



Auto-Manual Control Valves From Valvair

A full line of auto-manual control valves designed for automatic interlocking of manually-controlled circuits or to permit manual operation of an automatically operated system is reported by Valvair Corp.

Used in interlocked circuits, the valve can prevent out-of-sequence or accidental manual actuation which otherwise might result in damage to the machine.

For interlocking, a stock diaphragm end section is fitted to a standard Valvair body, with knob, lever or other type manual control mounted on the opposite end. Manual operation is unrestricted until air is applied to the diaphragm end. Actuation of the diaphragm returns the valve and holds it in the status-quo position.

Fitted with a return spring, the valve functions automatically, actuated by any 3-way pilot valve, instrument or process control. With actuating pressure off, the valve can be operated manually.

•

Carbide Side Tip Saw Announced by Hoe

The new Cobra is designed to give longer life on ripping, trimming and edging operations where steel saws are now used or where conventional carbide saws have not been effective.

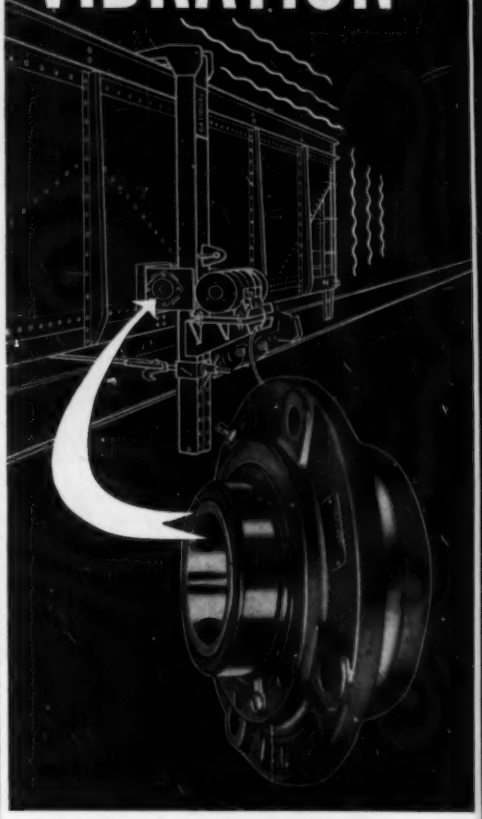
Hoe says the carbide side tipping of the Cobra permits a conventional steel tooth design. Other advantages of the Cobra, pointed out by Hoe, are that the built-in clearance of the carbide tips creates a permanent set, while the rigid teeth permit constant clearance, resulting in a reduction of horsepower consumption.

The steel portion of the saw retains a hardness of 56 to 58 Rockwell C.

Another PLUS value...

BUILT TO TAKE

VIBRATION



Even under car-shaker vibration that loosens tons of coal, Shafer Bearings keep their steel grip on longer life.

This reserve stamina stems from exclusive bearing design and precision construction. Concave rollers matched to convex raceways are of highly elastic, case-hardened alloy steel. With every shock, rollers compress, increasing bearing surfaces.

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DIAMOND LUMBER CO. reports...

"We Sand and Polish 14 Door Skins per Minute!"*

TIMESAVER SPEEDBELT® SANDERS

*That's the amazing production report made by E. R. Knokey, General Mgr., Plywood Div. of the Diamond Lumber Co., Tillamook, Oregon. Here's the story:

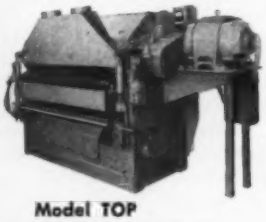
"The line of Timesaver Model TOP Speedbelt Sanders that we have installed are used primarily for sanding door skins. The skins are mostly 3 ply plywood made from Rotary Phillipine Lauan and range in size from 18" to 48" in width and from 72" to 82" in length. We sand and polish approx. 14 door skins per min. and do an excellent job."

When not running door skins, Diamond Lumber uses the Timesaver line to sand hardwood plywood panels which are normally ¼" to ¾" thick and 4x8 ft. in size. Woods in this category are Mahogany, Walnut, Cedar, Ash and various other hardwood species. Results on these materials are also excellent.

Other manufacturers such as *Anacortes Veneer, Inc.* and *Aberdeen Plywood and Veneers, Inc.* are also using Timesaver "Speedbelt" Sanders in their finishing operations. These are only a few of the many Timesaver installations where manufacturers are achieving savings in labor and materials while producing the desired top quality finishes. Whether your production requirements call for a single machine or a series set-up, you, too can enjoy the advantages of wide abrasive belt sanding at a minimum cost.

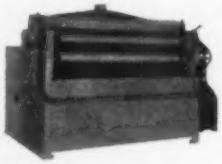
Write Today . . . get the facts and the figures on how the amazing Timesaver "Speedbelt" Sander can do your job . . . better and at less cost.

There's a TIMESAVER Sander for every job!



Model TOP

Available in belt widths of 24", 36", 50" and 54". Sanding action is overhead.



Model SPL

Available in belt widths of 24", 36" and 50". Sanding action is for underside of work.

Pioneers in Wide Belt Sanding for the Woodworking Industry

TIMESAVER SANDERS

Dept. E-4 Box 7446 • Robbinsdale Station • Minneapolis 22, Minn.

PERSONALITIES

ROBERT F. MOODY, for the past several years sales manager of Hyster Co.'s industrial truck division, has been appointed general sales manager. Moody, who has been headquartered at Danville, Ill., will move to the Portland, Ore., office.

R. F. MOODY

G. W. McCOLLUM

G. W. MCCOLLUM has been named sales representative for Irvington Machine Works, Portland, Ore., contacting dealers in Oregon, Washington, Idaho, Montana, California, Arizona and Nevada. McCollum has 21 years of experience in the machinery business. His most recent position was as sales manager and general manager for Prineville Machine & Supply Co., Prineville, Ore., where he developed the mechanical design for an electric carriage setworks.

WARREN CHRISTENSON has been named special sales representative in the eastern section of the United States and Canada for Nielson Saw & Manufacturing Co. He has 15 years of experience in the metals field.

W. CHRISTENSON

J. R. NEWTON

JOHN R. NEWTON is new chief engineer of Gerlinger Carrier Co., Dallas, Ore. He will be primarily responsible for product design and development. Mr. Newton formerly worked as a consulting engineer in Oregon and Washington.

GEORGE E. BAILIE has been appointed director of new products planning for Visking Co., division of Union Carbide Corp. He will supervise new product screening and coordination, market research and development.

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Export Sales Division, 30 Church St., New York 7, N. Y.

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Model RC1 with 26E Electrode makes shell & core tests without cutting lumber.

SIMPLE TO USE—Instantly indicates moisture content in Lumber, Veneer, Timber.

WIDE RANGE—Readings from 6-65%.

ACCURATE—Standard of wood industry, regularly used by all leading laboratories.

PORTABLE—Uses low cost, long life batteries.

RUGGED DESIGN—No maintenance required, fully guaranteed for one year.

ATTENTION KILN OPERATORS ! !
Write for details. **KIL-MO-TROL** measures wood moisture in kiln without entry or shutdown.

Delmhorst Instrument Company
632 Cedar Street — Boonton, N. J.

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EASY INSTALLATION . . .
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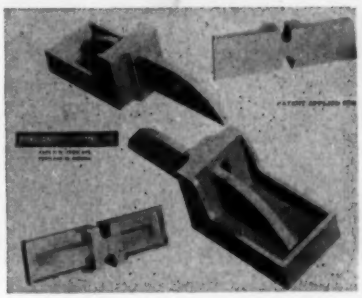
MAXIMUM STRENGTH . . .

"PORTALLOY is to chain as COPENHAGEN is to snoose"



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IN THE HEART OF THE LOGGING INDUSTRY

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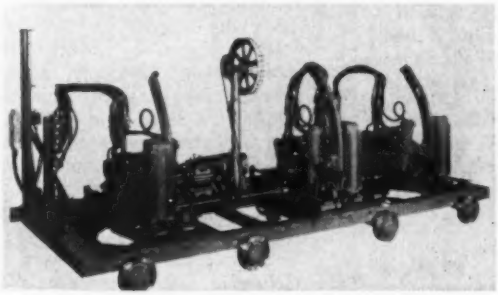
KMCo — SIMPLEX
Air-Operated Tong Dog Carriage
Now Available With
SEL-SET SELECT-O-MATIC
Predetermining Remote Control
ELECTRONIC SETWORKS



Klamath Machinery Company SIMPLEX, 3-block, right hand, Tong Dog Carriage equipped with Sel-Set Select-O-Matic Electronic Setworks.

KLAMATH MACHINERY CO.

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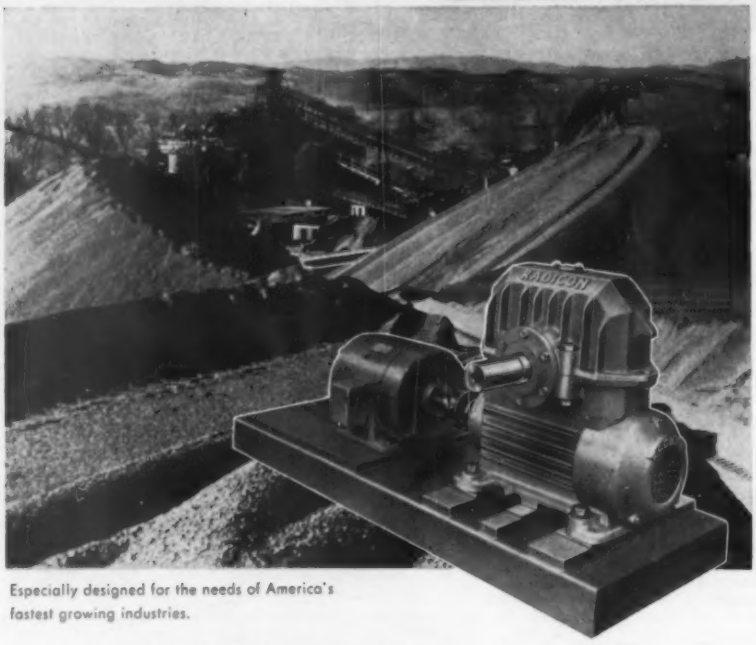

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the new RADICON COMPLETE DRIVES

"Eliminate drive design problems with the versatile new Radicon Complete Drive—just position—set six bolts and you're ready for service."

There's *no* do-it-yourself involved. Simply select the drive (easy as a gearmotor)—and set! Radicon reducers and motors are already carefully shimmed and aligned on heavy fabricated steel base plates of double box construction, firmly ribbed for rigidity. This means minimum stress at the flexible coupling—low maintenance, with complete versatility for service.

Fan-cooled Radicon Speed Reducers, such as type RHU in the above Complete Drive, are being specified for replacement and OEM in many industries these days. They have learned that Radicons are designed, not for show—but for rugged work in all extremes of temperature, dust, dirt and rain.

Immediate delivery 3" to 12", all standard ratios from 5:1 to 60:1. Radicon complete drives supplied by all authorized David Brown factory branches and distributors.

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Gear Products for: Mines, paper and pulp mills, chemical plants, food processors... conveyors, hoists, agitators, screens, deckers, filters, canning machines, and other industrial equipment.

Weyerhaeuser Company Is the New Name

"Timber" has been dropped from the name of Weyerhaeuser Timber Co. and the firm has adopted a new symbol for the products it manufactures at plants in 26 states.

Weyerhaeuser explains: "When the company was formed 60 years ago it was exclusively in the business of managing timberland. Timber is still our basic resource, but its use in the company title does not indicate adequately the wide range of products we now manufacture."

The name change applies only to the parent company and Weyerhaeuser Sales Co. Other subsidiary companies will retain their names, but adopt all other phases of the new identification.

Weyerhaeuser Sales Co. operations become a part of the lumber and plywood division. The move is designed to "effect maximum coordination among manufacturing, sales and customer service activities."

The Kieckhefer-Eddy division title, created in 1957 by the merger of Kieckhefer Container Co. and The Eddy Paper Corp. with Weyehaeuser will be discontinued. Its operation will be grouped under divisional titles descriptive of function or product.

•

Particle Board Plant Due Albany, Ore.

A $1.5 million particle board plant will be built near Albany, Ore., by newly formed Wood Fiber Co. Production is anticipated by mid-1960.

The company is composed of Willamette Valley Lumber Co., Dallas, Ore., and Santiam Lumber Co., Sweethome and Lebanon, Ore. It is headed by William Swindells as president.

The plant will utilize the Bahre process developed by Bahre Metal Works, Hamburg, Germany, in which particle selection is made by air flotation. Fines are directed to the outside of the mat with the particles gradually increasing in size to the center. Bahre is also a board manufacturer and is currently establishing a board plant in Canada.

Consultants on the installation will be Columbia Engineering Co., Vancouver, B. C.

Boards will be produced in 3/8, 5/8 and 3/4-inch thicknesses. The press will be 5x16 feet with 12 openings.

The plant will be designed to utilize sawmill residue not adaptable to shipping to the Western Kraft paper plant at Albany.

Other key personnel include Coleman H. Wheeler, vice-president; A. R. Morgans, secretary, and W. W. Affolter, in charge of sales.

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ARMOR-TOUGH

MANGANESE STEEL

LONG-LINK CHAIN

Columbia Armor-Tough Manganese Steel Long-Link Chain operates for years with no visible wear. Links are cast in one solid unit within the adjacent link; thus there's no weak spot. Order *Columbia Armor-Tough* Long-Link Chain, and end chain problems, during your lifetime.

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- HAZEL HOES
- LOGGING PANS
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- TRACTOR SHOES, BLADES, END BITS, SPROCKET RIMS

Columbia

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COLUMBIA STEEL CASTING CO., Inc.

933 N. W. Johnson, Portland 9, Oregon

KILN SOLVES PROBLEMS FOR MANY PLANTS

Natural Air Drying In Wood Pole Building

Quality control air drying system of Imrie Dry Kiln Co., Grand Rapids, Mich., has a basic principle of low ambient temperature automatically controlled temperature or humidity, natural air drying of lumber inside a specially designed, low cost, wood pole and wood truss building, arranged for fork lift handling.

Mechanical air ventilation equipment was designed for low total electric horsepower requirement and to completely change the air inside the building once every minute. This system is not a kiln.

In building shown above, the structure is 76′ wide by 140′ long by 24′ high. Capacity is 420,000 bd. ft. of 4/4 lumber and can produce 7½ to 8 million bd. ft. of soft and hardwoods per year.

Building is loaded by fork truck by "bays" or "groups," each containing 30,000 bd. ft. 4/4. Capacity is based on 16′6″ wide by 5′ high by length unit packages on stickers ¾″ thick. Two inch fir, for example gives 55M′ per bay.

New charges of green lumber packs in bays adjacent to dry bays have no effect on drying charges.

•

Kilns Dry Hardwoods For Pianos, Organs

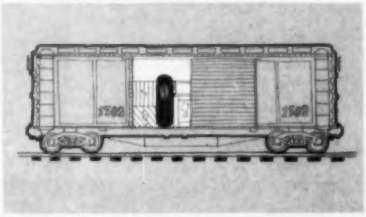
An exacting drying job is being done for Wurlitzer Co., of Corinth, Miss., by its Wel-Dri Co. kilns, made in Memphis, Tenn. The plant produces the famous Wurlitzer Electronic piano and Wurlitzer organs.

Stock for such instruments must be rigidly dried. Lumber dried is 8/4 white oak and walnut. Yard foreman and kiln operator Tom Hurst says these items are difficult to dry due to tendency to honeycomb and collapse. Perfect humidity and heat control and high velocity air circulation, however, do the job.

Kilns have a capacity of 64,000 bd. ft. All lumber is air dried to 18-25% MC before going into kilns. The kilns dry lumber to 5½ to 7½%.

Prevent cargo damage ...cut shoring costs

with the proven U. S. Shor-Kwik System of inflatable, returnable, reusable dunnage



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HIGH GRADE SAWMILL MACHINERY

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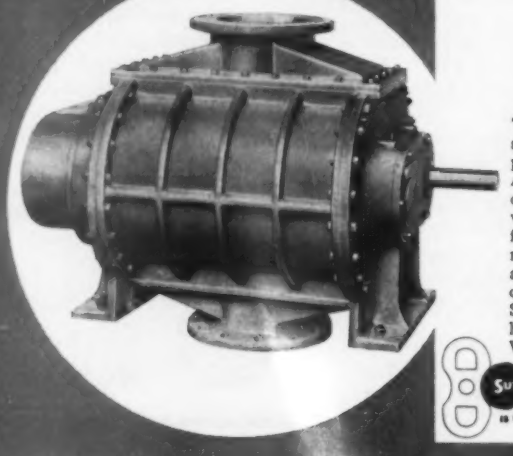
NOMINAL QUOTATIONS

September 4, 1959

STOCKS	Paid 1958	This Month Bid	This Month Ask	Last Month Bid	Last Month Ask
Ambassador Oil, Com.	$	3¾	4½	3⅝	4⅛
American Forest Products, Com.	1.00 &S	34½	OW	35	OW
Anderson Tully Co., Capt. Stk.	20.00	280	OW	250	OW
Atlas Plywood, Com.	.....	13¾	C	15½	C
Atlas Plywood, $1.25 Pfd.	.....	24½	26½	26½	28½
Biles-Coleman Lbr. Co., Com.	*	18	OW	18	OW
Boise Cascade Corp., Com.	.60	51½	54	55½	58
George E. Breece Lbr. Units	.30	2½	OW	2½	OW
British Columbia Forest Prod., Com.	.08	13¾	C	15	C
Brooks-Scanlon, Inc. "A"	.55	19½	OW	19½	OW
Brooks-Scanlon, Inc., "B"	.55	19½	OW	19½	OW
Calaveras Land & Timber Co., Com.	2.00	26¾	OW	26	OW
Calcasieu Paper Co., Com.	1.50	25	OW	25	OW
Cascades Plywood Co., Com.	1.75	35½	36½	37	39
Central Coal & Coke Co., Com.	1.00	29	31	30½	32½
Cherry River Boom & Lbr., Com.	.....	33	OW	33	OW
Chicago Mill & Lbr. Co., Com.	1.25	25¼	27	26	28
Cloquet Lumber Co., Com.	*	1	OW	1	OW
Consolidated Naval Stores, Capt. Stk.	30.00	825	OW	817	OW
Container Corp., Com.	1.00	28⅝	C	29¼	C
Container Corp., 4% Pfd.	4.00	87	C	89½	C
Crossett Company, Class "A"	.60	51	OW	47	50
Crossett Company, Class "B"	.60	51	53	47	50
Crown Zellerbach, Com.	1.80	57	C	54¼	C
Crown Zellerbach, $4.20 Pfd.	4.20	88	C	91	C
Curtis Companies, Com.	.....	12¼	13	13¾	15
Dierks Forests, Inc.	5.00	125	OW	125	OW
Evans Products, Com.	.25	19⅞	C	28⅜	C
First Lumber Corp. Com.	.....	21½	23	18½	20½
Fordyce Lumber Co., Capt. Stk.	1.00	40	OW	40	OW
General Plywood, Com.	.....	20	C	20⅜	C
Georgia-Pacific Co., Com.	1.00 &S	43¼	C	45¼	C
Harbor Plywood, Com.	.40	21⅞	C	21⅜	C
Edward Hines Lumber Co. Com.	2.50	42½	45	45	48
Insular Lumber Co., Com.	1.25	12	OW	12	14
International Paper, Com.	3.00 &S	130⅛	C	130	C
International Paper, $4 Pfd.	4.00	90	C	89½	C
Keyes Fibre Co., Com.	1.20	26¾	28¾	26¾	28¾
Kirby Lumber Corp. Com.	1.00	46	48	46¼	48¼
Longview Fibre Co., Com.	3.00	88	91	91	93
Louisiana Central Oil & Gas., Com.	10.00	50	OW	50	OW
Louisiana Long Leaf Lumber Co.	5.00	152	OW	150	OW
Louisiana Sawmill Co., Com.	.....	½	OW	½	OW
MacMillan & Bloedel, "B" Com.	1.05	38¾	C	40¾	C
McCloud River Lumber Co., Com.	4.00	85	OW	82½	OW
McCloud River Railroad, Com.	2.00	35	OW	35	OW
Meadow River Lumber Co., Com.	*	200	OW	200	OW
Medford Corp., Com.	7.00	270	OW	250	OW
Mississippi Land Co., Capt. Stk.	1.50	15	OW	12	OW
Northwest Paper Co., Com.	.80	35½	.....	35½	OW
O. & N. Lumber Co., Capt. Stk.	3.00	42	OW	42	OW
Olin Oil & Gas, Com.	.....	20	22	21	23
Ozan Lumber Co., Com.	2.00	90	OW	90	OW
Pacific Lumber Co., Capt. Stk.	10.00	315	OW	305	OW
Pickering Lumber Co., Com.	.30	10	11	10½	11½
Pine Tree Manufacturing Co.	3.65	50	OW	50	OW
Pope & Talbot, Inc. Com.	1.00	38½	42	41	OW
Pope & Talbot, Inc., Pfd.	.30	4⅞	5½	4¾	OW
Potlatch Forests, Com.	1.00	62	65	60½	63½
Powell River Co., Ltd., Com.	1.50	36	38½	38	41
Puget Sound Pulp & Tbr. Co., Com.	.80	25	C	25½	C
Richmond Cedar Works Mfg. Com.	.....	¾	1½	¾	1½
Richmond Cedar Works, Com.	.....	1¾	2½	1¾	2½
Ritter, W. M., Lumber Co., Com.	2.00	41	OW	41	45
Roddis Plywood, Com.	.10	14½	15½	14¼	15¼
St. Regis Paper, Com.	1.40	52⅜	C	53⅛	C
Southern Minerals Corp., Com.	.....	4¾	5¾	5	6
Southwest Lumber Mills, Com.	.....	15	16	14	15½
Tremont Lumber, Com.	2.00	65	OW	65	OW
U. S. Plywood, Com.	1.62½	42¼	.....	49	C
Union Lumber Co., Com.	1.25	60	OW	55½	OW
United States Lumber, Com.	.35	4⅜	5⅜	4⅝	5⅝
Upson Company, Com.	.80	12¾	13¾	12¾	13¾
Weyerhaeuser Timber, Com.	1.00	44½	46	47¾	49½
Winton Lumber Co., Com.	.92	15	OW	15	OW
Wood Conversion Co., Com.	.40	19	21	20½	22
Wooduse, Inc., Com. (Now Fersolin Corp. Com.)	.....	¾	1½	¾	1¼
BONDS					
Georgia-Pacific Corp. Subordinated Deb., 5s due 1976	.....	81	84	83	86

* Information not available BW—Bids Wanted S—Stock
OW—Offerings Wanted C—Last sale on Exchange where listed or bid

THE ABOVE INFORMATION, WHILE NOT GUARANTEED, IS OBTAINED FROM SOURCES WE BELIEVE TO BE RELIABLE



SUTORBILT BLOWERS HELP CLEAR THE AIR FOR AMERICA'S LUMBER INDUSTRY

Today Sutorbilt blowers are utilized extensively in pneumatic systems for conveying wood chips. They have turned in high performance records of trouble free operation.

Accurately-designed Sutorbilt blowers deliver air or gas in capacities up to 20,000 cubic feet per minute and pressures or vacuums up to 10 pounds. The California series blowers, fitted with four main bearings and wide face gears, are recommended for high service performance. To facilitate piping arrangements, all units can be furnished in the vertical design if desired.

Sutorbilt blowers are ruggedly built for long life. They can help reduce the problems of wood chip handling for you. Write today for complete details.

1383
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SUTORBILT IS WELL BUILT

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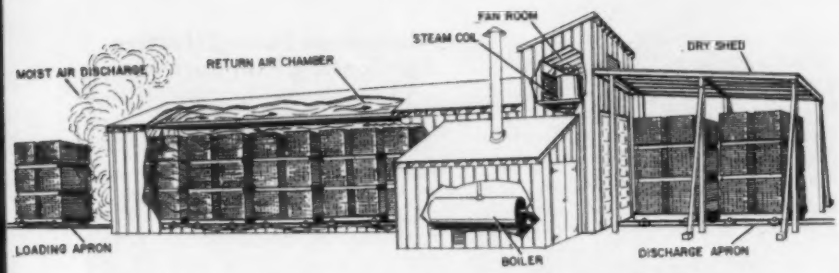

Tunnel Dryer Achieves Uniform Moisture Content

Functional simplicity of the Blo-R-Dry tunnel dryer is shown in the sketch. Starting at loading apron, left, kiln car is on its way through the progressive tunnel. It enters kilns and lumber is subjected to warm moist air about 80° with 95-100% moisture content. Each baffled station in the kiln creates a change of temperature and humidity through which each car passes. Overhead vane axial fans work efficiently against 1½" static pressure. Therefore fan room is a negative pressure and plenum at the kiln head is positive pressure which forces air through the cross stuck lumber.

Uniformity of moisture content in this type of drying is good. In recent tests there were the usual heart pieces on the low side and a few sinkers on the high sides, but better than 90% fell in a range of 12 to 16% moisture content.

Operational costs on a per 1,000 BM basis are as follows: Fuel $1.50; Sticking $1.35; Insurance 16c; Electricity 21c; Maintenance 20c; Total $3.42 per thousand feet. Blo-R-Dry, Inc., Portland Ore., has just completed successful tests in pre-drying and seasoning old growth Redwood. Above kiln can produce 20 to 25 MBM per day, installed complete for as little as $32,500.

•

Change at Whitney Lumber

Simon Alsaker has resigned as resident manager of Mt. Whitney Lumber Co.'s Johnsondale, Calif., operation, and has been succeeded by Walter LaCasse, formerly with Ivory Pine Co. at Dinuba, Calif. Mr. Alsaker says he will take an extended vacation and then possibly re-enter the lumber business.

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WOOD-MOSAIC QUALITY FACE VENEERS

Why tie up your money in inventory of raw flitch veneers and freight? Wood-Mosaic tapeless, spliced faces are matched, trimmed to size and ready to lay at the glue press.

Wood-Mosaic offers this facility in both face veneers and poplar crossbanding. All shipments well packed and crated.

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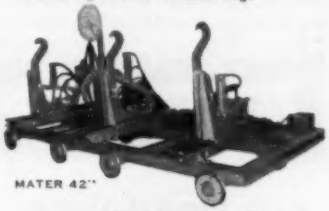
7 different MATER CARRIAGES

Sawyers prefer a Mater Carriage. With a flick of a switch he can make a Mater Carriage do everything he wants, instantly, accurately. Mater gives him time to think and to get the best grade out of each log.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MATER MIDDLEWEIGHT
for small logs.

MATER "42"
for small logs, high production.

MATER STANDARD DUTY
for heavy small logs.

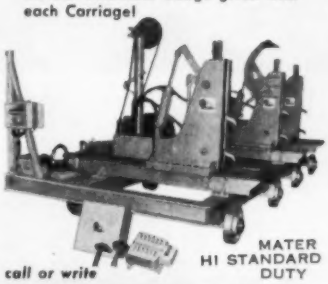
MATER HI STANDARD DUTY
for large logs, high production.

MATER GIANT
heavy duty—precision with muscle.

MATER SUPER GIANT
very heavy duty for very large logs.

MATER SPECIAL CARRIAGES
for special purpose.

All Mater Riderless Carriages equipped with Mater Auto-Set Automatic Setworks. Test the accuracy of Mater Carriages Yourself. A Mater Lumber Thickness Gauge given with each Carriage!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SPECIALISTS IN AUTOMATION FOR THE FOREST PRODUCTS INDUSTRY

Wilson Kilns Season Output For Idaho Sawmill

Three double track J. O. Wilson kilns at Post Falls Lumber Co., Post Falls, Ida., have two 150 hp. gas-fired automatic boilers. Capacity is 400M bd. ft. for each kiln week. Each is automatically-controlled by separate instruments. There is a series of booster coils running up and down the center of each double-track kiln, controlled independently from the main coils.

Kiln construction is as follows: Walls are of hard-burned hollow clay tiles. Roofing has steel trusses with pre-formed lightweight expanded shale slab roof with 2" blanket of glass wood insulation and aluminum sheeting layer. It has been tested at 3000 psi.

All steam pipes are copper fin type. Wiring is General Cable Co. mineral insulated wire. There are five 7' fans in each double track kiln; automatically reversible at predetermined intervals. Fans are direct-driven by 5-hp. gear-reduction motors which are insulated against heat and moisture.

Aluminum Paint Effective For Coating Kiln Surfaces

The dry kilns at Tolo Lumber Driers, Central Point, Ore., show very little deterioration on the inside concrete block walls after a year of service with aluminum asbestos paint. A product called Kiln Jack, which can be brushed or sprayed on, has proven effective in sealing the holes in the blocks. It can also be used on wood, preferably with an undercoat, reports Kiln Foreman E. E. Ramsey.

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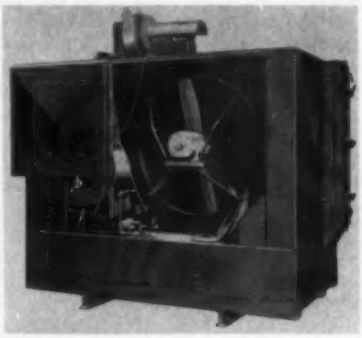


Portable Dryer Designed For Small Operations

A portable lumber dryer that can be moved from lumber pile to lumber pile with a fork lift truck has just been announced by Medford Machinery Co., Portland, Ore., builders of Fryer Dry Kilns.

The "Porta-Dry" is designed for smaller mills which could profit by drying a carload or two a week but would not benefit by investing in a large capacity dry kiln.

Drying methods vary with species and location, however, the average amount of lumber which Porta-Dry is said capable of drying is from 25M to 30M, usually 5 units deep and 2 to 3 units high. The loads can be covered with lightweight panels or with a heavy tarp which is furnished with the machine.

The cover forces the hot air through the units of stickered lumber, carrying off the moisture as it rises to the surface of the lumber. Drying time is said to be one-tenth the time or less required to "air-dry" the same lumber.

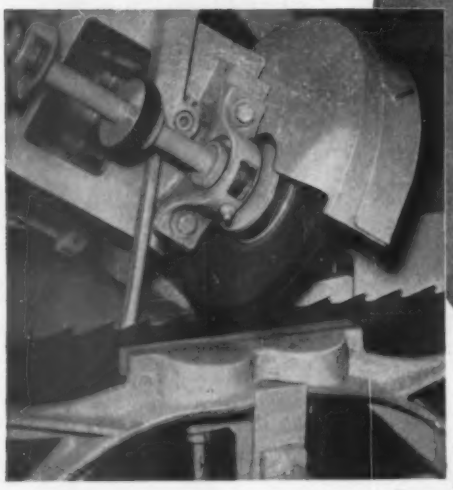
Porta-Dry is a self-contained unit that weighs 10,000 lbs. empty or 18,000 lbs. filled with its capacity of 1,000 gallons of oil. Heat capacity is 1,000,000 b.t.u. with air delivery of 60,000 CFM.

•

• General Machinery Co. has consolidated its shop facilities and office at 8900 S.E. 72nd Ave., in Portland, Ore., according to president Ben Bader. A downtown office is discontinued.

THIS WAY

for IMPROVED Saw Gumming



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For fast grinding without wobble or run-out at the sides . . . for grinding deep down in the gullets without burning or casehardening . . . these wheels are second to none. They're now even better than ever, because of unique SA Borolon, the single crystal aluminum oxide abrasive with each cutting particle containing multiple, stress-free cutting edges. This assures accurate tooth shapes and clean contours quickly, economically and consistently. Vitrified bonded. All shapes and sizes. Order from your Simonds Distributor.

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West Coast Plant: El Monte, Calif.
Division of Simonds Saw and Steel Co.

BRANCHES: CHICAGO • DETROIT • LOS ANGELES • PHILADELPHIA • PORTLAND, ORE. • SAN FRANCISCO • SHREVEPORT

Furniture Stock Dried in Forced Air Kiln

Forced air drying for furniture stock has proven successful for Dixon-Powdermaker Furniture Co., Jacksonville, Fla. A Moore forced-air dryer installed last spring has a holding capacity of 80,000 bd. ft. The building is 52'8" wide by 76' long, holds four kiln loads abreast.

The fan system is located at track level in the center of the building and has nine 72" single shaft fans. Building is pole-type construction with metal clad walls and roof. Because of the high humidity of the area, steam heating coils help speed drying during the night.

System cuts down on weathering and other degrade accompanying ordinary yard drying. Lumber is unloaded when received and stacked into kiln loads and moved immediately into the forced air dryer. Forced air drying reduces moisture content to 20 to 30% and kiln reduces moisture content to final 6%. Weathering and accompanying end checking, staining and warping has been eliminated.

Moisture Meter Gives Accurate Measurement

A moisture detector which gives readings with an accuracy of better than 1% is available from Delmhorst Instrument Company. This is a wide range meter allowing readings on the dial of 6% to 65%. On hot lumber, readings of as low as 4% moisture content can be made.

It is possible to test veneers, lumber or timbers in all forms—finished furniture, wood "in place" used in building construction as well as plaster, brick, concrete, prior to application of paint, wallpaper, acoustic tile, linoleum and floor tile.

Because electrodes furnished with electric moisture meters are usually equipped with short contact pins, they may not give accurate measurements when the stock is more than 1½" in thickness, nor when dry stock is wet on the surface (as might be the case of wood which has been exposed to rain or fog.) The new Delmhorst Electrode, Type 26E, when used with the Model RC-1, is said to eliminate the possibility of error under such conditions and make it possible to measure moisture content and distribution of moisture of stock up to 4" in thickness without cutting wood samples.

Delmhorst Instrument Company, 632 Cedar Street, Boonton, New Jersey offers a free bulletin.

For More than 50 years
Around-the-Clock

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- **Metal Spraying and Spray Bond**
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- **Repair of Veneer and Plywood, Sawmill and Logging Equipment**

Our plant is equipped to make practically any kind of machine repairs in quickest possible time. Our large capacity planers, horizontal and vertical boring mills, 12-head gang drilling machine and skilled machinists, are available 24 hours a day to get your job done FAST!

HOT PRESS PLATE REPAIR OUR SPECIALTY

Our heavy duty equipment will finish plate surfaces to any requirement specified, either polished, ground, or flat tool finished. Thin or badly damaged plates can be brought back to original thickness by a method devised by Lamb engineers. Write or phone us your plate repair problem and we'll be glad to work out a solution for you.

One of our heavy duty machines surface grinding a 66" x 132" plate. The closest possible tolerance with a high quality finish is maintained without removing valuable plate thickness.

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LUMBER PRICES

Douglas Fir

1x8	Utility S4S KD	$ 62- 67.00
2x4	Construction Dimension S4S KD	94- 96.00
1x4	C&Br VG Flooring KD	180-185.00
1x6	C&Br Drop Siding KD	155-160.00
1x6	C&Br S4S KD	170-175.00
1x8	C&Br S4S KD	170-175.00
1x10	C&Br S4S KD	175-180.00
1x12	C&Br S4S KD	215-229.00

Construction Timbers and Plank

3x12	6-20 feet	$ 98-101.00
3x12	22-24 feet	103-106.00
3x12	26-32 feet	111-116.00
4x4	8-20 feet	99-102.00
4x4	22-24 feet	104-107.00
4x4	26-32 feet	113-118.00
6x6	8-20 feet	97-100.00
6x6	22-30 feet	104-107.00
6x6	32-40 feet	119-122.00
8x8	8-20 feet	97-100.00
8x8	22-30 feet	102-105.00
8x8	32-40 feet	117-120.00
6x6, 8x10, 10x10, 12x12	8-20'	$ 95- 98.00
6x10, 8x10, 10x10, 12x12	22-30'	100-103.00
6x10, 8x10, 10x10, 12x12	32-40'	115-118.00

Construction Dimension (Green)

2x4	6-24 feet	$ 80- 82.00
2x6	6-24 feet	80- 82.00
2x8	6-24 feet	80- 82.00
2x12	6-20 feet	81- 83.00

Standard & Btr. Boards (Green)

1x4	6-20 feet	$ 65- 68.00
1x8	6-20 feet	78- 81.00
1x12	6-20 feet	76- 79.00

Douglas Fir Plywood

¼-inch AD S01S $ 68.00

Southern Pine (KD Stock)

Vertical Grain Flooring

	BB	C	D
1x4	$220.00	$210.00	$205.00

Flat Grain Flooring

1x4	165.00	157.00	140.00
1x6	190.00	177.00	135.00

Drop Siding

1x6 No. 106	187.00	184.00	142.00
1x6 No. 116	187.00	184.00	142.00

Boards and Shiplap

	1x6	1x8	1x10	1x12
No. 1	$135.00	$135.00	$133.00	$178.00
No. 2	86.00	90.00	88.00	100.00
No. 3	77.00	84.00	83.00	82.00

No. 1 Dimension

	12	14	16	18	20
2x4	$107.00	107.00	107.00	119.00	119.00
2x6	103.00	103.00	103.00	116.00	116.00
2x8	102.00	100.00	100.00	110.00	112.00
2x10	115.00	112.00	110.00	125.00	125.00
2x12	120.00	115.00	115.00	125.00	130.00

No. 2 Dimension

	12	14	16	18	20
2x4	$102.00	102.00	102.00	115.00	115.00
2x6	96.00	96.00	96.00	111.00	111.00
2x8	97.00	95.00	93.00	108.00	108.00
2x10	103.00	103.00	103.00	107.00	110.00
2x12	101.00	101.00	100.00	114.00	118.00

Western Pine

Ponderosa Pine

Selects S2 or 4S	4/4 RW	5/4 RW	6/4 RW
C Select RL	$255.71	$263.21	$260.02
D Select RL	168.21	194.95	187.40

Shop S2S	No. 1	No. 2
5/4	$144.89	$112.12
6/4	144.14	112.22

Commons S2 or 4S	No. 2	No. 3
1x8" RL	$ 97.14	$ 77.32
1x12" RL	108.44	79.69

4/4 No. 4 Commons S2 or 4S $ 63.30

Idaho White Pine

Selects S2 or 4S	4/4 RW	6/4 RW
Choice (C) RL	$261.41	$295.46
Quality (D) RL	169.46	287.40

Commons S2 or 4S	Col. (1)	Ster. (2)	Std. (3)
1x8" RL		$122.68	$ 88.52
1x12" RL		157.86	100.35

4/4 Utility (4) S2 or 4S RW&L $ 67.53

Sugar Pine

Selects S2 or 4S	4/4 RW	5/4 RW	6/4 RW
No. 1 & 2 Clear RL	$287.55	$279.28	$285.23
C Select RL	276.78	270.27	274.06
D Select RL	190.07	198.17	201.48

Shop S2S	No. 1	No. 2	No. 3
5/4	$148.47	$111.98	$ 80.90
6/4	150.32	114.95	86.35
8/4	169.07	125.00	82.60

Larch-Douglas Fir

4/4 No. 3 Common S2 or 4S $ 76.33
2x4 No. 1 Dimension RW&L 91.78
2x4 No. 2&Btr. Dimension RW&L 82.04

•

• The Robert Gray Shingle Co. in Hoquiam, Wash., has been sold to Rain Forest, Inc., Aberdeen, Wash., and reopened. Francis W. Schaler is president and manager of Rain Forest.

AMERICAN CASE HISTORY #14

Four American dust collectors centrally located to serve the whole plant.

a unique dust collecting system at Timber Structures

At Timber Structures' large fabricating plant in Portland, a unique and amazingly efficient dust collecting system spots the four huge cyclones in the middle of the lumber storage yard where the collectors are most convenient to all manufacturing buildings.

This unusual location of the dust collectors posed a serious problem: how to support pipe without creating yard obstructions. American engineers whipped the problem using bridge building techniques to truss up the blower pipes with steel cables (note trussed pipes left background, in above photo)

Five individual American dust collecting systems serve all of the woodworking machinery in the Timber Structures plant. Dust and chips are relayed from collectors to fuel storage 100 feet away. All supporting structures and blowers were engineered, fabricated and erected by American Sheet.

Swift, effective service and top-flight engineering are yours for the asking at American. Ask an American expert to discuss your dust collecting problems with you.

AMERICAN MEANS EFFICIENCY

AMERICAN SHEET METAL WORKS, Inc.
Manufacturers of Blowers
920 NE Glisan Portland, Oregon BE 2-0111

LOG BRONC in log pond of Willamette National Lumber Co., Foster, Ore., during a peak day has handled 147 truck loads of logs, placing them in a required 6-way sort. One man and the Bronc did the job. The sorts include fir, hemlock, white pine, cedar and peelable fir logs to the sawmill storage area and fir, hemlock and peelable fir to the cold deck. The Bronc, made by Nelson Log Bronc Co., Coos Bay, Ore., is 13 feet long, 5 feet wide with a 24-inch draft. The hull is 5/16 and 1/4-inch steel plate. The craft is powered by a long shaft outboard motor mounted for 360° turns without reversing.

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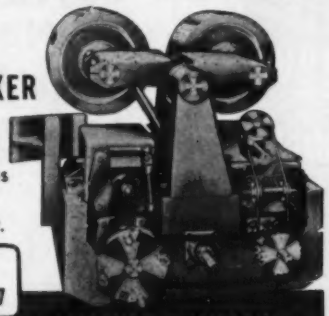
with this
MODERN
END PRINTER-WAXER

Here is a compact, easy-to-install machine that will build repeat sales for you. Get our new bulletin on the subject.



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You don't pay the man who isn't there

Engineered to Cut Costs

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SAWMILL MACHINERY

CORLEY MANUFACTURING CO. CHATTANOOGA, TENN.

New Southern Operation Nears Production Stage

Rison Lumber Co. has completed its new sawmill at Rison, Ark., and is well along on construction of its new kilns and planing mill. An early start of production is anticipated.

L. H. Goodman, vice-president of the firm, says the pine operation will be fully integrated.

F. B. Moody, Jr., formerly with International Paper Co. and more recently resident inspector for the Southern Pine Inspection Bureau, will be in charge of the Rison operations.

Rison Lumber, headquartered in Memphis, Tenn., also operates the Scott Lumber Co. in Waldron, Ark.

•

• Jack Whittaker has been named general superintendent of the Boston Bar, B. C., operation of Hampton Lumber Mills, Portland, Ore. He was formerly general superintendent for the sawmill of British Columbia Forest Products at Youbou, B. C.

Evans Breaks 500

Evans Products Co., Plymouth, Mich., major plywood and board manufacturer, is ranked by Fortune Magazine as 469th among the United States' 500 largest industrial corporations. The ranking is based on net sales of $67 million in 1958. The firm's sales have nearly quadrupled in the past 10 years. Evans plywood sales and its Fiddes-Moore distribution organization have been major factors in the growth.

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All Types of Sawmill Equipment
Scrag Mills, Edgers, Stud Stackers, Sprayers, Plywood Oilers
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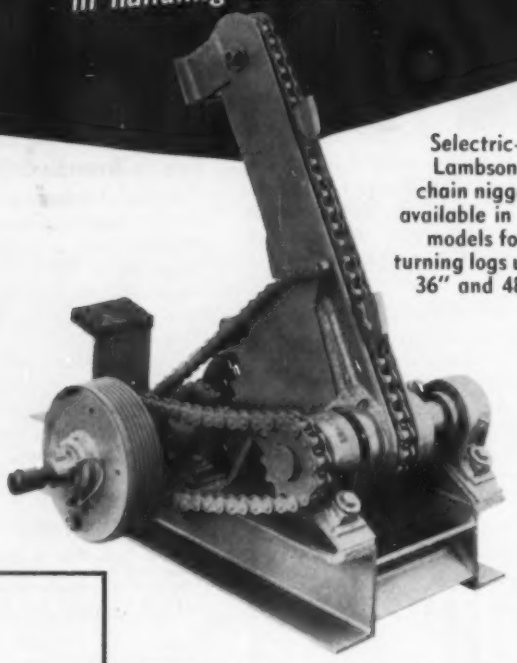
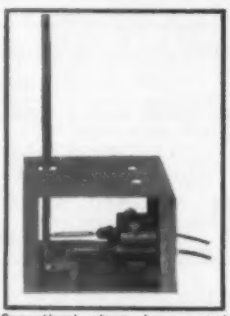
Wood Pipe
2 inches to 16 feet diameter.
Wood Tanks
100 gallons to 500,000 gallons capacity.
6851 East Marginal Way
PArkway 2-0582 Seattle, Wash.

New SELECTRIC Chain Nigger

provides fastest turning, surest control in handling small logs



Selectric-Lambson chain nigger available in two models for turning logs up to 36" and 48"



Conventional nigger lever controls brake action through master hydraulic cylinders.

Two large brake drums assure built-in safety and smooth, sure control at all times.

Designed for small portable mills and as an auxiliary turner for larger mills handling small logs

- **FAST TURNING SPEED** achieved through instantaneous application of hydraulic braking power.
- **SENSITIVE RESPONSE AND FEEL** of log is provided by finger tip control of brake pressure.
- **SIMPLE, EASY OPERATION** with conventional nigger arrangement requires no operator re-education.
- **POSITIVE CHAIN AND BAR CONTROL** through two hydraulically operated brake drums.
- **REDUCED LOG DAMAGE** by applying only the pressure needed to handle the log.

Typical of every new item in the Mill Equipment line, the new Selectric-Lambson Chain Nigger was carefully conceived and painstakingly built for the specific purpose of delivering speed, positive control and profitable handling of small logs. Yet, at the same time it permits an operator to turn 36" or 48" logs as easily and quickly as a 4" log.

Let your Mill Equipment representative show you how the new, easy-to-install Selectric-Lambson Chain Nigger can add profits in both time and log recovery to your operation.

Another outstanding product of

MILL EQUIPMENT, INC.

5219 FIRST AVENUE SOUTH SEATTLE 8, WASHINGTON PArkway 2-0717

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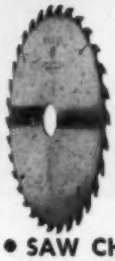
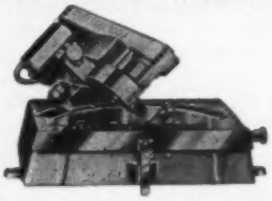


• CARBIDE SAWS

Increase production, decrease down time and maintenance with Nielsen tungsten carbide tipped saws and knives. They stay sharp from 20 to 30 times longer than steel, and give a smoother cut. You can cut your saw and knife costs in half with NIELSEN Carbide Saws.

• SAW CHAIN GRINDERS



Precision sharpening of saw chains increase chain life up to 50%. NIELSEN SAW CHAIN GRINDERS are easy to use, accurate and rugged. Sharpen all types of chain, joint depth gauges. Some models also sharpen circular saws.

See your NIELSEN distributor, dealer or write to the factory for information on Carbide saws or Saw Chain Grinders.

NIELSEN Saw & Manufacturing Co.
2395 W. 7th Place, Eugene, Oregon
Diamond 3-3358

ATLAS HEAVY-DUTY CYLINDERS for

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Hydraulic and Air

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24 HOUR SHIPMENT

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ANY TYPE MOUNTING

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***Lawrence* CAR LOADER OVERSHOES**

When high grade lumber and plywood needs kid glove handling specify Lawrence Car Loader Overshoes. Soft, light pliable leather eliminates scuffs, scars and damaging blemishes that reduce the value of high grade lumber. Lawrence overshoes are comfortable to wear . . . easy to slip on. Felt insoles cushion every step. Adjustable strap buckles over instep. Sizes: Small, medium and large.

WRITE DIRECT FOR PRICES AND INFORMATION
Catalog available on a complete line of high climber belts, climber leg straps and lumber pilers apron.

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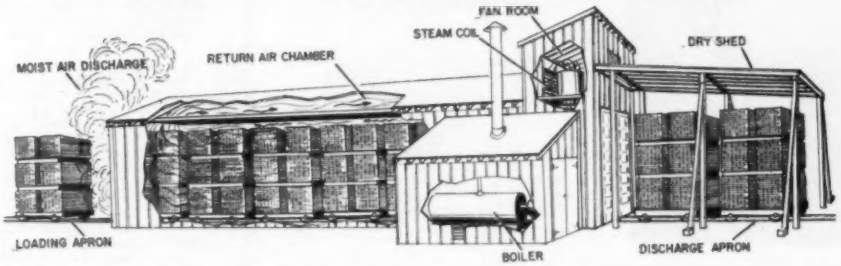
BLO-R-DRY Kilns Designed for Low Cost Operation
High Quality Performance, Straight Line Production



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★ Automatic Oil or Gas Burners ★ Automatic Temp. Controls ★ Modular Steam Valves ★ Conveyor Rails & Kiln Trucks

CONSIDER THESE FACTS

A Dry Kiln installation capable of 20 to 25 MBM per day can be purchased for as low as $32,500.00 total cost.

On a lease basis this kiln can be installed for a $1,000 deposit and the first monthly payment is not due until 30 days after the kiln is in operation. Monthly payments are considerably less than the net gain in income as a result of this installation.

BLO-R-DRY, Inc.
803 Portland Trust Bldg.
Portland, Oregon
CA 8-9770

BLO-R-DRY INC.
803 Portland Trust Building
Portland 4, Oregon

Gentlemen:
We are interested in more information relative to your Blo-R-Dry kiln.

☐ Please have your representative contact us.
☐ Please forward brochure and information on lease—"Pay as you Profit" plan.

Name of Company.....
Address.....
Person to Contact.....

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PREPARE YOUR LUMBER.....
FOR KILN DRYING...

MORE — UNIFORM LUMBER
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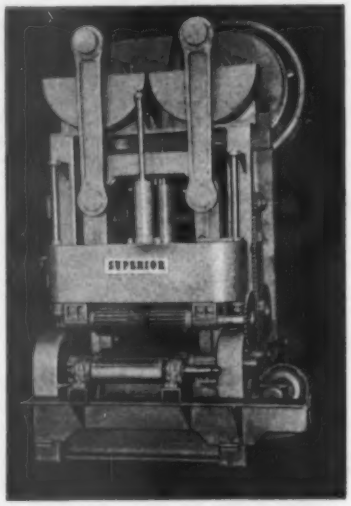

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GANG MILLS

324HD (24") LOG GANG
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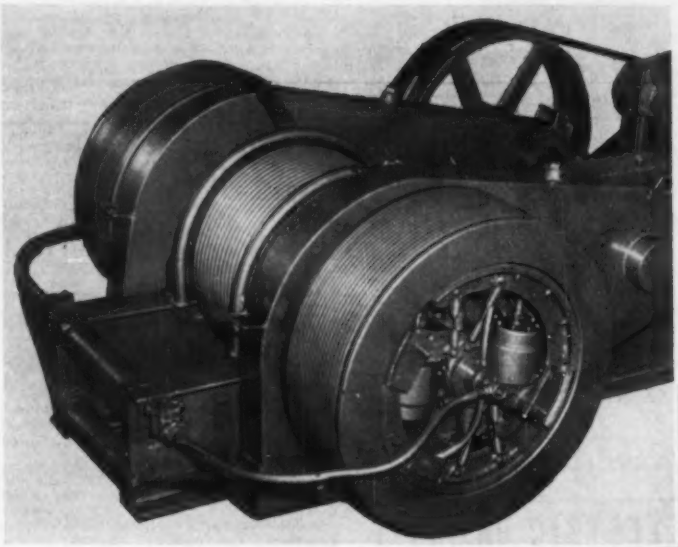

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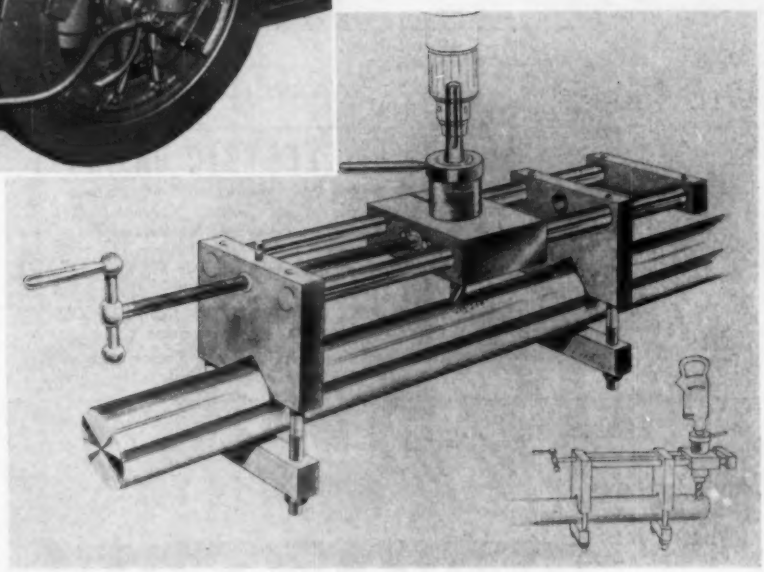

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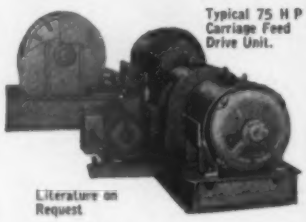

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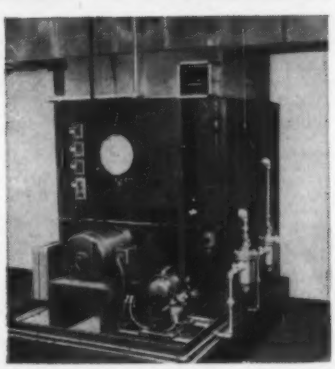
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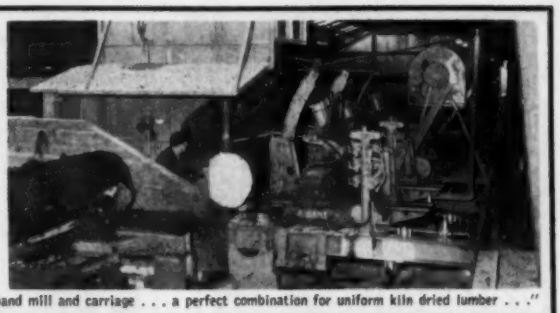

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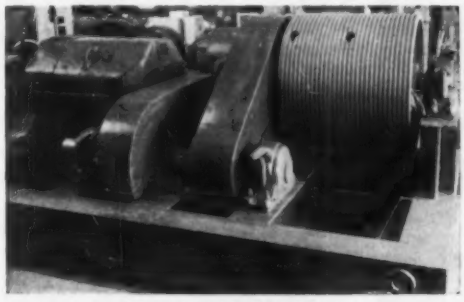

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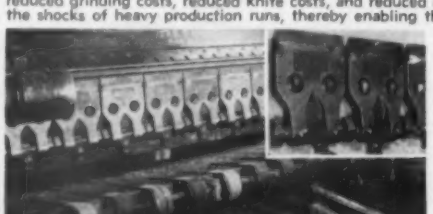

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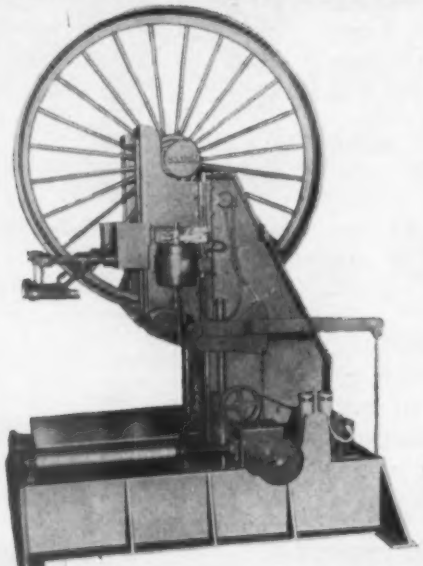

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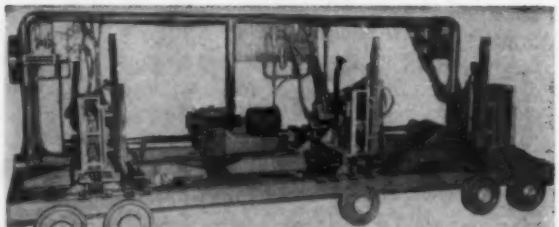

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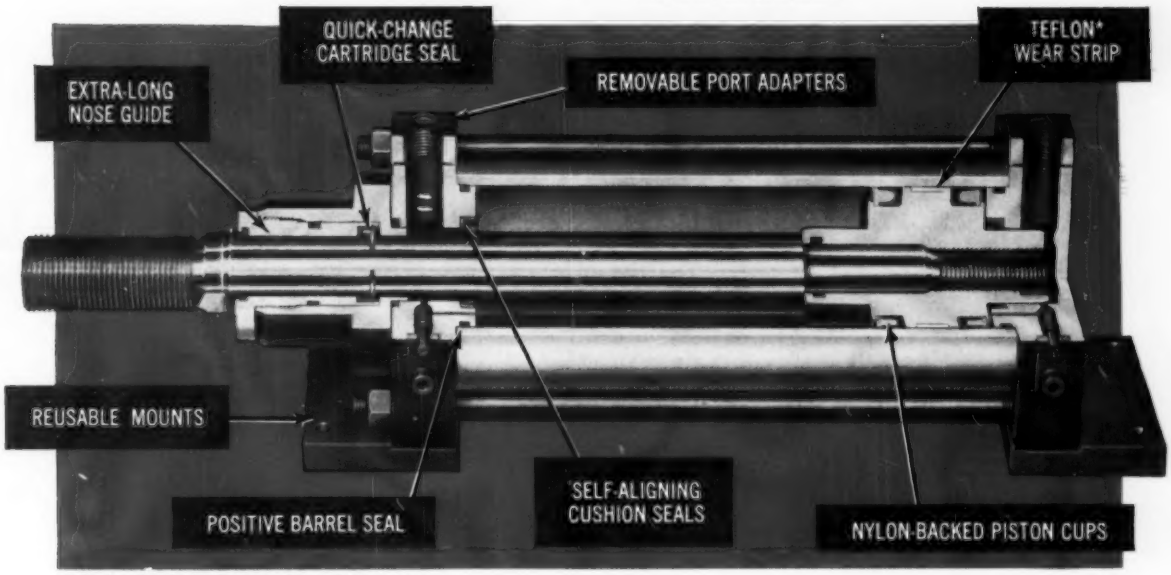

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